

*Paper, Allied-Industrial, Chemical and Energy
Workers International Union
(PACE)*

**PACE International Union Survey:
Workplace Incident Prevention and
Response Since 9/11**

REPORT

October 2004
New Perspectives Consulting Group, Inc.
PACE Evaluation Team

Acknowledgments

This report was produced by New Perspectives Consulting Group, Inc.* with in-depth consultation from PACE's Evaluation Team. The Team is comprised of: 1) worker trainers from across the country who work in different industries represented by PACE; 2) PACE staff members; and 3) staff from the Labor Institute, the labor education organization that writes and develops educational programs for PACE union. The Team helped develop the project, design the survey and interviews, carry out the data collection, analyze the data, and review the report.

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Donna Howard
Michael Kaufman
Tom McQuiston
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Kathy Smith
Doug Stephens
Brian Williams

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Executive Summary

Introduction

Background. The U.S. Clean Air Act Amendments of 1990 required the U.S. Environmental Protection Agency (EPA) to enact regulations establishing a Risk Management Program (RMP). Facilities that produce or store large quantities of 140 highly hazardous chemicals¹ must develop a Risk Management Program. The 15,000 RMP sites regulated by the EPA across the U.S. have been identified as possible targets for terrorist attacks. The Paper, Allied Industrial, Chemical and Energy Workers International Union (PACE) identified 189 RMP sites where 50,437 PACE members work. PACE-represented industries -- paper mills, petroleum refineries, chemical manufacturing and nuclear materials facilities may be targets. The communities surrounding these facilities are also at-risk.

Study Overview. PACE sought to gain a better understanding of issues related to prevention of and preparedness for possible intentional incidents (i.e., terrorist attacks) at sites represented by its local unions. In March 2004, PACE launched a self-administered mail-back survey questionnaire that asked respondents from high vulnerability PACE-represented facilities about issues and activities since the attacks of 9/11. Questions covered issues of: vulnerability assessment, prevention, emergency response, training, and involvement of the local union, hourly workers and the community.

Survey Population, Administration, and Response. PACE developed a target list of potentially high hazard sites to include in the survey based on the intersection of a list of EPA Risk Management Program (RMP) sites and a listing of PACE local unions/company sites. A packet of information including a letter from PACE International Union President Boyd Young was sent to the local union president and recording secretary of each PACE represented RMP facility identified. The local union president was asked to designate someone who was knowledgeable about what the company and the local union might be doing to lower the vulnerability of their site to intentional (terrorist attacks) and unintentional incidents. Survey data was collected between March and June 2004. The survey response rate of 70% was calculated

¹ Quantities greater than thresholds listed by the EPA.

based on the number of PACE represented facilities to which PACE mailed survey questionnaires (189), and the number of returned surveys (133).

Of the 133 sites that returned questionnaires, this report's findings are limited to those 125 sites (95%) that responded *yes* when asked whether their worksite had quantities of chemicals or other hazardous materials large enough to cause a catastrophic event on-site if those materials were involved in a fire, explosion or other release. The findings for this report are limited to these 125 sites because they represent the PACE members at greatest risk. Of the 125 sites included, 100 also said that they faced the potential of a catastrophic event to the areas surrounding their site.

About the Respondents. The majority (82%) of the responding worksites were *chemical* plants (32%), *primary paper* mills (26%), or *oil refineries* (24%). The remaining 18% of the worksites were *other* types of industries. *Other* industries included the following: cement, automotive, nuclear, paper converting, wet milling, and synthetic rubber.

Limitations of the Data. It is important for you to remember the following limitations when you review these findings:

- ❖ This survey looked at perceptions only. It did not include an independent assessment of, for example, which employees actually received training since September 11, 2001, or which actions companies actually took.
- ❖ The survey respondents were selected from a list of Risk Management Program (RMP) sites. However, due to security limitations imposed since 9/11, the most accurate lists of RMP sites are not readily available. Therefore, some sites who did respond may not actually be RMP sites any longer, and some sites who were not surveyed may actually be RMP sites at this time. Readers should be careful not to assume that the findings can be generalized broadly to represent all PACE represented workplaces, all PACE represented sites from a specific industrial sector, or RMP sites in general.

Findings

Possibility and Likelihood of A Catastrophic Event

Ninety-five percent (95%) of the respondents reported that their sites have large enough quantities of chemicals to cause a catastrophic event if those materials were involved in a fire, explosion or release. Over half of the sites indicated that they face a *high* or *medium* likelihood of a catastrophic event due to a **terrorist attack** (54%) or an **unintentional incident** (59%).

What Companies Are Doing

Company Preventative Actions. In response to these vulnerabilities respondents' reports suggest that most employers assessed their sites vulnerabilities (66%) and worksite security (64%). Company actions appeared to focus more frequently on security, with almost three-quarters (73%) of the respondents reporting improved systems to guard and secure the plant.

All other company actions were reported to be taken at less than half of the study sites. These actions included improved communication systems (43%), improved training and procedures to prevent possible terrorist attacks (38%), updated warning systems (38%), improved containment of potential hazardous releases (34%), and improved quality and availability of personal protective equipment (30%). Some preventative actions, that could directly reduce the likelihood of a catastrophic event, were reportedly taken with the least frequency, such as: reduced volumes of hazardous substances (17%), strengthened plant vessels, tanks, piping or other structures (17%), and improved the siting of hazardous substances or processes (14%).

Company Actions To Prepare To Respond. When preparing to respond to an event caused by a **terrorist attack**, 68% of the companies provided emergency response training to employees in the past 12 months, and 59% conducted emergency response drills for the plant site. About half (47%) of the respondents reported that the companies at their worksites had updated *facility* emergency response plans since 9/11. Other company actions to prepare for responding to an event included: 46% informed local fire and police departments, HazMat teams, etc. about specific plant hazards; 42% put additional procedures in place to inform employees of emergencies; and 30% updated shutdown procedures.

Respondents used the *don't know* choice considerably more frequently in the set of questions about actions to inform local community services, or nearby residents or update the **community** Emergency Response Plan than when responding about actions at their facility. While, 23% knew their employers had informed local hospitals, health departments and emergency medical personnel about potential health threats from plant-specific exposures, 20% said these community health services were not informed, and 57% reported *don't know*.

Effectiveness Of Company Prevention and Response Actions

Effectiveness of Prevention Actions. Less than half (44%) of the respondents indicated that their company's preventative actions, including security efforts, were effective (includes: *very effective*, *moderately effective*, and *slightly effective*) in reducing the vulnerabilities of their site to a catastrophic event caused by a **terrorist attack**. Over one-third (36%) were *neutral* about the effectiveness, and one-fifth (21%) said the actions were ineffective (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*).

When considering the effectiveness of actions to *prevent* an event caused by an **unintentional incident**, one-third (33%) said the company's actions were effective. Forty-six percent (46%) were *neutral* about the effectiveness, and one-fifth (21%) said the actions were ineffective to reduce their sites' vulnerabilities to an event caused by an **unintentional incident**. On average, respondents rated the effectiveness of company actions to *prevent* a catastrophic event only slightly above *neutral* (**terrorist attack** = 4.2 and **unintentional incident** = 4.1) on a 7-point scale.

Respondent assessment of the effectiveness of the company actions to *prevent* a catastrophic event were also examined considering perceptions of a site's vulnerability to a catastrophic event (*high*, *medium*, *low*). Forty-five percent (45%) of the respondents who rated their sites with a *high* vulnerability level also rated their company's actions to *prevent* an event caused by a **terrorist attack** as ineffective. This ineffective rating is notably higher than ratings given by respondents from *medium* or *low* vulnerability sites who rated their companies' actions regarding an event caused by a **terrorist attack** as ineffective (medium vulnerability sites = 18% ineffective, *low* vulnerability sites = 11% ineffective). Overall, respondents rated the effectiveness of company actions to *prevent* an event caused by a **terrorist attack** (44%) higher than one caused by an *unintentional incident* (33%).

Effectiveness of Response Actions. Thirty-eight percent (38%) of the respondents indicated that their company's actions *in preparing to respond* to an event caused by a **terrorist attack** were effective (includes: *very effective*, *moderately effective*, and *slightly effective*). As many were *neutral* (38%) about the effectiveness of actions *in preparing to respond* to an event caused by a **terrorist attack**, while almost one quarter (23%) said the actions were ineffective (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*). When considering the effectiveness of company actions *in preparing to respond* to an event caused by an **unintentional incident**, 44% said the company's actions were effective. The same percentage (38%) were *neutral* regarding the effectiveness of *preparing to respond* to an **unintentional incident** as they were to an event caused by a **terrorist attack**. Eighteen percent (18%) said the company's actions were ineffective. On average, respondents rated the effectiveness of company actions to *respond* to a catastrophic event caused by a **terrorist attack** only slightly above *neutral* (4.1) on a 7-point scale. Respondents' perceptions of the effectiveness of employers' actions *in preparing to respond* to an event caused by an **unintentional incident** was slightly higher at 4.4, midway between *neutral* and *slightly effective*.

When rating the effectiveness of the company actions *in preparing to respond*, respondents from sites rated as having a *high* likelihood of a catastrophic event reported considerable differences from *medium* or *low* likelihood sites. When considering responding to an event caused by a **terrorist attack**, 44% of respondents who characterized their sites as *high* risk found their company's actions ineffective. This rating is considerably higher than the ineffectiveness ratings given by respondents at sites with a *medium* or *low* likelihood of an event (*medium* likelihood = 27% ineffective, *low* likelihood = 11% ineffective). However, most notable is that when considering the effectiveness of company actions *in preparing to respond* to an **unintentional incident**, the *highest* risk respondents rated their employers' actions with the highest levels of effectiveness in the survey, with 62% indicating that their company's actions were effective.

Training

About one-third of respondents reported that no employees at their sites received training about *preventing* (34%) or *responding* (28%) to a catastrophic event caused by a *terrorist attack* since 9/11. At sites where some training occurred, 38% reported that half or fewer employees received *response preparedness* training, and 27% reported that half or fewer employees received *prevention* training. Notably, a sizeable percent of respondents reported not knowing about training to *prevent* (25%), or *respond* (21%) to catastrophic events at their sites. Seventy-four percent (74%) reported that additional training was needed for members of their bargaining unit.

Involvement Of Hourly Workers, the Local Union Or Community

A strong majority of respondents reported no action had been initiated by the companies at their sites to involve the local union or hourly workers in company plans or actions *to prevent* or *respond* to a catastrophic event caused by a possible **terrorist attack**. About one-quarter reported involvement by the local union and hourly workers in making recommendations (local union = 25%, hourly workers = 22%), and being informed by the company (local union = 21%, hourly workers = 28%). Ten percent (10%) of respondents reported that their local unions had taken action to improve the company's plans or actions regarding prevention of or response to a catastrophic event. However, 83% reported no action had been initiated by their local union. Those respondents who indicated actions taken by the local union, described efforts to ask the company for additional employee training, and offers for the local union to work with the company on these issues.

Involvement of the community regarding company plans or actions was even lower. In addition, almost two-thirds of respondents selected the *don't know* choice regarding community involvement.

Recommendations for the Future

A number of action-oriented opportunities for PACE Union's Health and Safety Department and local unions emerge from this examination of the survey findings.

The PACE Evaluation Team Incident Prevention and Response Since 9/11 Work Group recommends that local unions examine this report's findings and consider the following questions:

1. What does this data mean for your local and for your site?
2. What actions do you want the company at your site to take regarding the following: preventing catastrophic events; preparing to respond to potential catastrophic events or emergencies; and involving your local union, hourly workers and the communities surrounding your facility?
3. What role should your local union take to initiate or advocate for the highest levels of prevention for your members, the facility, and the communities surrounding your facility?
4. How can your site work more closely in coordination with local emergency responders and health providers who would respond in an emergency?
5. Can your local union organize a training for your members about these issues, using the PACE Health and Safety Department curriculum?

Furthermore, the Evaluation Team Work Group recommends that the PACE Health and Safety Department take the following actions:

- A. Educate and train PACE members about more effective actions companies could take to prevent catastrophic events using higher levels of prevention, rather than solely focusing on increased security measures.
- B. Develop expanded training opportunities for PACE members about: 1) prevention and response to hazardous materials emergencies, and 2) the variety of roles local unions, hourly workers, and communities can play in prevention and response activities.
- C. Increase the level of awareness about these issues within PACE Union.

Preventing and preparing to respond to potential catastrophic events whether caused by terrorist attacks or unintentional incidents are important issues facing PACE's membership. The PACE Evaluation Team hopes this assessment and report contribute to the dialogue and to effective action to meet these serious challenges.

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Introduction

Background

EPA's Risk Management Program

The U.S. Clean Air Act Amendments of 1990 required the U.S. Environmental Protection Agency (EPA) to enact regulations establishing a Risk Management Program (RMP). Each facility that produces or stores large quantities of 140 highly hazardous chemicals² must develop a Risk Management Program. Facility operators at RMP sites are required to undertake hazardous materials accident prevention activities and to make reports to the EPA. The RMP reporting process includes an analysis of possible consequences of a major chemical incident to surrounding communities. There are 15,000 RMP sites regulated by the EPA across the U.S.

RMP Sites Are Potential Sources of "Weapons of Mass Destruction"

In 2000, The Department of Justice linked RMP sites to the issue of terrorist threats (or Weapons of Mass Destruction, WMD) when it stated:

In recent years, criminals have with increasing frequency attempted to obtain or produce WMD precisely because such weapons are engineered to cause wide-scale damage to life and property. However, traditional means of creating or obtaining WMD are generally difficult to execute. In contrast, breaching a containment vessel of an industrial facility with an explosive or otherwise causing a chemical release may appear relatively simple to such a terrorist.³

RMP-Related Risk Estimates Limited for Assessing Terrorist Threats

While looking at the number, location and type of RMP sites may offer important insights into assessing possible terrorist threats, this vantage point is limited in that:

1. RMP data and analyses assess risks related to accidental rather than intentional incidents. Intentional acts that create hazardous chemical disasters may differ from and be more severe than accidental releases in a number of important ways. For example, the Government Accounting Office (GAO) reports that the RMP regulation requires facilities to estimate the effects of a toxic chemical

² Quantities greater than thresholds listed by the EPA.

³ Source: United States Department of Justice Assessment of the Increased Risk of Terrorist or Other Criminal Activity Associated with Posting Off-Site Consequence Analysis Information on the Internet, April 18, 2000.

release involving the greatest amount of the toxic chemical held in a single vessel or pipe -- not the entire quantity on site. Therefore, for some facilities it is conceivable that an attack, where multiple chemical vessels were breached simultaneously, could result in an even larger release. Such releases would involve more severe consequences, than those estimated in the RMP "worst-case" scenarios.⁴

2. RMP "Off-Site Consequence Analyses" only consider releases of a single hazardous chemical from a single source. However, the risks are potentially greater because releases in one system can trigger releases in adjacent systems involving other chemicals.⁵
3. Planning conducted as part of the RMP process primarily involves assessment of scenarios and possible consequences for off-site, rather than on-site populations. It is likely that any terrorist attack at an RMP site would put the entire on-site population at extreme risk.

Amplifying the potential severity of these possibilities, a 2001 U.S. Army analysis estimated that up to 2.4 million people could need medical treatment as a result of a major chemical disaster.⁶

Chemical, Refinery, and Other Site Risks

Shortly before the World Trade Center disaster, the EPA published a study of hazardous chemical accidents at RMP sites and reported:

- Among the 15,000 RMP sites considered to be at risk of a terrorist attack, 11% were petroleum refineries (1,609 sites) and 13% were chemical or petrochemical related manufacturing (1,945 sites).
- Petroleum refineries ranked first in the number of hazardous chemical accidents at RMP sites between 1994 and 1999. This accounted for 10% of all such accidents and was nearly double the number for any other single industry.

⁴ United States General Accounting Office. 2003. Homeland Security: Voluntary Initiatives Are Under Way at Chemical Facilities, but the Extent of Security Preparedness Is Unknown. GAO-03-439, March 2003.

⁵ Sources: Belke, J. 2000. U.S. Environmental Protection Agency. "Chemical accident risks in U.S. industry: A preliminary analysis of accident risk data from U.S. hazardous facilities." September 25, 2000; and United States General Accounting Office. 2003. Homeland Security: Voluntary Initiatives Are Under Way at Chemical Facilities, but the Extent of Security Preparedness Is Unknown. GAO-03-439, March 2003; and National Transportation Safety Board. 2002. Hazardous Materials Accident Report: Hazardous Materials Release From Railroad Tank Car With Subsequent Fire at Riverview, Michigan, July 14, 2001. Washington, D.C.: National Transportation Safety Board.

⁶ United States Army, Draft Medical NBC Hazard Analysis of Chemical-Biological-Radiological-Nuclear-High Explosive Threat, Possible Scenarios & Planning Requirements, Army Office of the Surgeon General. Cited in: United States General Accounting Office. 2003. Homeland Security: Voluntary Initiatives Are Under Way at Chemical Facilities, but the Extent of Security Preparedness Is Unknown. GAO-03-439, March 2003.

- While the paper industry has far fewer RMP sites than refineries or chemical manufacturing facilities, two classifications of Paper Mills ranked 2nd and 4th in the rate of hazardous chemical accidents.⁷
- Sites classified as “chemical manufacturing” accounted for one in four of all RMP site hazardous chemical accidents.

While the EPA study focused on unintentional rather than intentional incidents, the knowledge that RMP sites are considered possible targets for terrorist attacks makes the findings of the study even more sobering. It is especially sobering for those who work at or live near refineries, chemical plants, paper mills and nuclear facilities.

The gravity of this situation was made more evident by the issuing of alerts in early 2003:

- On February 7, 2003 the Homeland Security Advisory System issued a “High” (Orange) state of alert. First on the list of potential targets was “the energy sector, including tank farms, refinery facilities, and oil tankers.”⁸
- On February 12, another alert was issued warning of possible “conventional attacks against the U.S. nuclear/chemical-industrial infrastructure to cause contamination, disruption, and terror. Based on information, nuclear power plants and industrial chemical plants remain viable targets.”⁹

As well, in its recent study of vulnerability and security preparedness at U.S. chemical facilities, the GAO stated:

Chemical facilities may be attractive targets for terrorists intent on causing economic harm and loss of life. Many facilities exist in populated areas where a chemical release could threaten thousands. EPA reports that 123 chemical facilities located throughout the nation have toxic “worst-case” scenarios where more than a million people in the surrounding area could be at risk of exposure to a cloud of toxic gas if a release occurred.¹⁰

⁷ Number of Accidents per Process per Year

⁸ Sources: National Infrastructure Protection Center, Homeland Security Information Update, Information Bulletin 02-001, February 7, 2003. <http://www.nipcc.gov/publications/infobulletins/2003/ib03-001.htm>

⁹ National Infrastructure Protection Center, Homeland Security Information Update, Information Bulletin 03-003, February 12, 2003. <http://www.nipcc.gov/publications/infobulletins/2003/ib03-003.htm>

¹⁰ United States General Accounting Office. 2003. Homeland Security: Voluntary Initiatives Are Under Way at Chemical Facilities, but the Extent of Security Preparedness Is Unknown. GAO-03-439, March 2003.

In addition to these 123 chemical facilities, there are approximately 700 sites that could put 100,000 or more persons in the surrounding areas at risk from a chemical release, and approximately 3,000 sites could put at least 10,000 or more persons at risk. This adds up to nearly 4,000 sites and tens of millions of people at risk.

PACE Members at Risk

PACE identified 189 RMP sites where 50,437 PACE members work. PACE-represented RMP sites include:

- 26,696 workers at 47 primary paper mills
- 12,003 workers at 44 petroleum refineries
- 8,461 workers at 77 chemical manufacturing facilities
- 3,277 workers at 22 facilities with other classifications.

There are an additional 58,987 workers at 190 PACE-represented chemical plants, paper mills, petroleum refineries, and petroleum-product manufacturing facilities that use high volumes of highly hazardous chemicals.

In summary, PACE-represented industries -- paper mills, petroleum refineries, chemical manufacturing and nuclear materials facilities -- are some of the most at-risk sites for a terrorist incident in the United States. For PACE members and their fellow employees, merely the status of working at an RMP site or a site that uses highly hazardous chemicals puts them on the front lines in battle against both unintentional (accidental) and intentional (terrorist) incidents. In addition, hundreds of thousands – perhaps millions – of citizens who reside in nearby communities face similar threats.

Study Overview

In the 2003-2004 grant year, the Paper, Allied Industrial, Chemical and Energy Workers International Union (PACE) sought to gain a better understanding of issues related to prevention of and preparedness for possible intentional incidents (i.e., terrorist attacks) at sites represented by its local unions. The assessment addressed vulnerability to catastrophic hazardous materials incidents that could have effects either on- or off-site.

The purposes of this study were to:

- ▶ Learn what actions companies are taking to:
 - Prevent and respond to a catastrophic event caused by a potential terrorist attack or an unintentional incident.
 - Involve local union leaders, hourly workers, and the community in these efforts.
- ▶ Use the survey information to develop programs for PACE local unions to protect the workforce and surrounding communities from a potential catastrophic event caused by a terrorist attack or an unintentional incident.

The survey design, administration, analysis and report writing were conducted by the PACE Evaluation Team which is comprised of worker trainers and staff, with facilitation and guidance provided by New Perspectives Consulting Group, Inc., a Durham, North Carolina based evaluation consulting firm that has worked with PACE Union to evaluate its programs for over 10 years. The evaluation team developed a self-administered mail-back survey questionnaire that asked respondents about issues and activities since the attacks of 9/11. These related to potential catastrophic incidents including vulnerability assessment, prevention, emergency response, training, and involvement of the local union, hourly workers and the community.

PACE developed a target list of sites to include in the survey based on the intersection of a list of RMP sites included in the Right-to-Know Network (RTK Net) database¹¹ and a listing of PACE local unions/company sites. In this process PACE identified 189 RMP sites where it is the collective bargaining agent for workers. This listing of 189 RMP sites includes 12,003 workers at 44 petroleum refineries, 26,696 workers at 47 primary paper mills, 8,461 workers at 77 chemical manufacturing facilities, and 3,277 workers at 22 facilities with other industrial classifications (see map below).

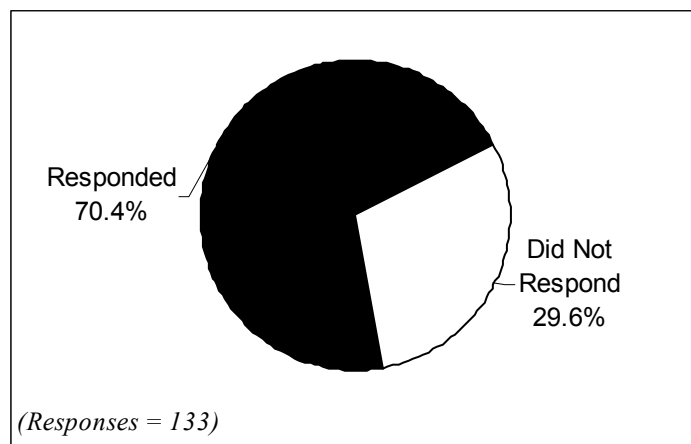


Survey Administration and Response

A packet of information including a letter from PACE International Union President Boyd Young, instructions for completing the survey, the survey itself, and a return envelope was sent to the local union president and recording secretary of each PACE represented RMP facility identified through the RTK Net database. PACE requested that the local union president designate a local union member or group of members to complete the survey on behalf of the facility targeted by the survey. PACE asked that the person or people completing the survey be knowledgeable about what the company and the local union might be doing to lower the vulnerability of their site to intentional (terrorist attacks) and unintentional incidents. Suggested people for this task included: the local union president, secretary-treasurer, chair or member of the Health and Safety Committee, Health and Safety or TOP Representative, or other health and safety activist. Once completed, the surveys were returned, by mail, to PACE headquarters. After all of the surveys were collected, the surveys were forwarded to New Perspectives Consulting Group, Inc. for data entry, analysis, and reporting.

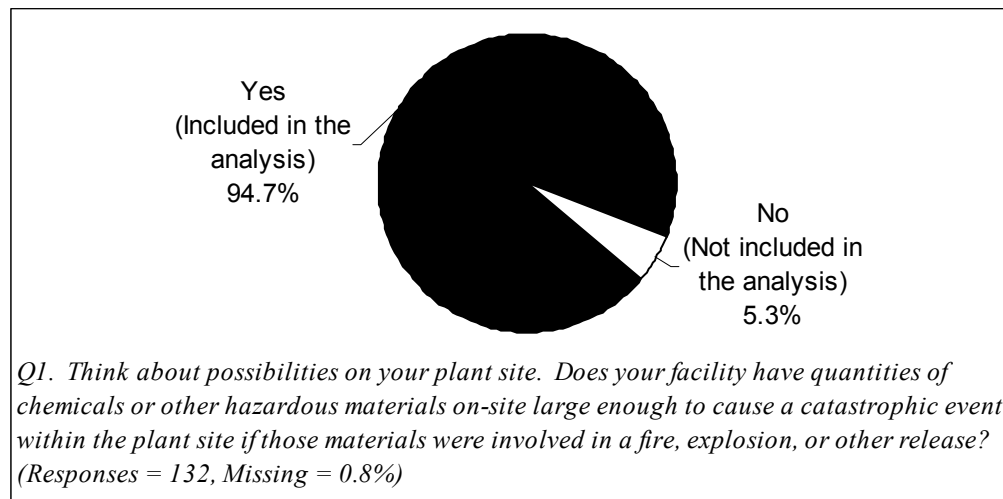
Survey data was collected between March and June 2004. The survey response rate of 70% was calculated based on the number of PACE represented facilities to which PACE mailed survey questionnaires (189), and the number of returned surveys (133). (See Chart 1 below.)

Chart 1: Survey Response Rate



Of the 133 sites that returned questionnaires, this report's findings are limited to those 125 sites (95%) that responded *yes* when they were asked whether their worksite had quantities of chemicals or other hazardous materials large enough to cause a catastrophic event on-site if those materials were involved in a fire, explosion or other release. (See Chart 2 below.) We limited the findings for this report to these 125 sites because they represent the PACE members at greatest risk. Of the 125 sites included, 100 also said that they faced the potential of a catastrophic event to the areas surrounding their site. One site (that was not included in these findings) indicated that they did not have the potential for a catastrophic event on site, but they did off site.

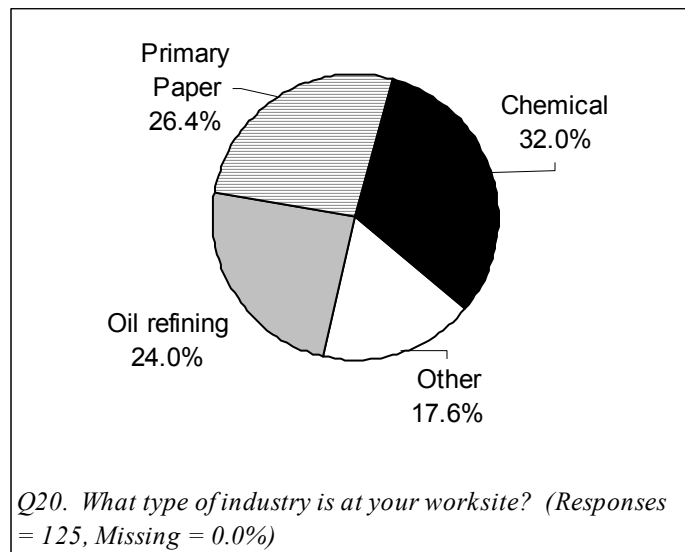
Chart 2: Possibility of a Catastrophic Event On-site



About the Respondents

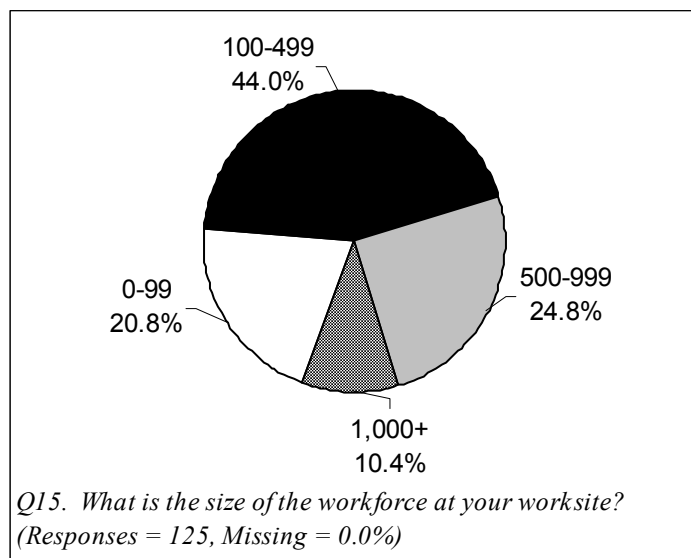
Type of Industry. The majority (82%) of the responding worksites were *chemical* plants, *primary paper* mills, or *oil refineries*. The remaining 18% of the worksites were *other* types of industries. (See Chart 3 below.) Respondents who indicated that they represented *other* industries included the following: cement, automotive, nuclear, paper converting, wet milling, and synthetic rubber.

Chart 3: Type of Industry



Size of Workforce. The majority (44%) of the responding worksites had 100-499 employees. Twenty-five percent (25%) had from 500-999 employees and 21% had from 0-99 employees. About 10% of the worksites were relatively large, employing 1000 or more persons. (See Chart 4 below.)

Chart 4: Size of Workforce



Coverage by Standards / Regulations. Respondents were also asked about regulations applicable to their worksites. These included: OSHA's Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120, HAZWOPER), OSHA's Process Safety Management of Highly Hazardous Chemicals Standard (29 CFR 1910.119, PSM), and EPA's Risk Management Program (RMP). Seventy-six percent (76%) reported that they were covered by HAZWOPER, 79% reported that they were covered by the Process Safety Standard, and 50% reported that they were RMP sites. A notable percentage indicated that they *did not know* if their site was covered by these standards or regulations (22% for HAZWOPER, 20% PSM, 48% RMP). (See Table 1 below.)

Table 1: Site Covered by Standards and Regulations

Standard / Regulation	Yes	No	Don't know
HAZWOPER (Q 18)	76.4%	1.6%	22.0%
PSM (Q 16)	79.0%	0.8%	20.2%
RMP (Q 17)	50.0%	2.5%	47.5%
Q16. Is your site covered by OSHA's standard "Process Safety Management of Highly Hazardous Chemicals" (1910.119)? (Responses = 124, Missing = 0.8%); Q17. Is your site a Risk Management Program (RMP) site according to the Environmental Protection Agency? (Responses = 122, Missing = 2.4%); Q18. Is your site covered by OSHA's standard "Hazardous Waste Operations and Emergency Response (HAZWOPER)" (1910.120)? (Responses = 123, Missing = 1.6%)			

Report Lay-out

The report begins by providing some guidance on interpreting the report's data, including the charts and tables. Following this, the findings are reported in the following sections:

- ❖ Likelihood of a Catastrophic Event
- ❖ Preventing a Catastrophic Event
- ❖ Plant Security
- ❖ Effectiveness of Prevention Actions
- ❖ Preparing to Respond
- ❖ Effectiveness of Actions in Preparing to Respond to a Catastrophic Event
- ❖ Training: Quality, Scope, and Need
- ❖ Involvement in Incident Prevention and Response by Local Unions, Hourly Workers or Communities

After these sections is a list of this study's limitations and the Discussion and Conclusions section. The Discussion and Conclusions section summarizes and interprets some of the main findings and links some of the findings together to provide a broad, cross-cutting view of the findings gathered from the RMP sites in this study.

Tips on Interpreting Charts, Tables, and Data Overall

Quantitative and Qualitative Data

This evaluation primarily features “quantitative” data that uses statistics. “Qualitative” data, open-ended answers written by the respondents’ in their own words were also collected in a limited number of questions.

Survey Questions

Many survey questions asked respondents to think about their experiences “since September 11, 2001”. For this and other types of specific information, look at the bottom of survey-related charts and tables for the original survey question

Different Groups’ Different Answers to Questions

To get a better sense of what the findings mean, in some cases, the Evaluation Team compared the answers to questions from one group of respondents (such as respondents who indicated that their worksite has a high likelihood of experiencing a catastrophic event caused by a terrorist attack) to other groups (such as respondents who indicated that their worksite has a medium or low likelihood of such an event). These comparisons, sometimes called “cross-tabulations” or “cross-tabs,” are used to help see if certain groups of respondents have different perceptions of the issue or experiences than other groups of respondents.

Missing Data

For a variety of reasons, those who fill out surveys do not always answer every question. Respondents were told that they did not have to answer any questions that they did not want to answer. The number of people completing each question is indicated in each chart. Also included in each chart is the percentage of missing responses for this question. This is based on those who did not answer that particular question in relation to the total number of people (125) who completed the survey and are included in the analysis.

Percentages and the Impact of Rounding

When analyzing the data and presenting it in this report, we chose to round numbers to one decimal place. When a value was 5 or above, we rounded up. While this makes it easier to read, it has its drawbacks. You may notice in some findings that percentages do not add up to 100. This is due to rounding.

Averages

All of the charts and tables in this report use percentages to show the proportion of respondents who selected the various response choices. However, in the sections addressing the effectiveness of company actions, and in the Discussion and Conclusions, we also averaged the rating given by respondents about effectiveness. You will notice that there is a gray row in the tables and a gray box in the charts that present the “averages” of the data on a 7-point scale. This number represents how respondents, on average, rated the issue.

To calculate the average, we assigned each choice in the scale a value as follows: *very effective*=7, *moderately effective*=6, *slightly effective*=5, *neutral*=4, *slightly ineffective*=3, *moderately ineffective*=2, and *very ineffective*=1. We calculated the average as follows:

1. Multiplied the number of respondents who indicated a particular response by the value assigned to that response
2. Added up all the products across the different response choices on the 7-point scale
3. Divided the sum of the products by the total number of respondents to get the average

Here is an example:

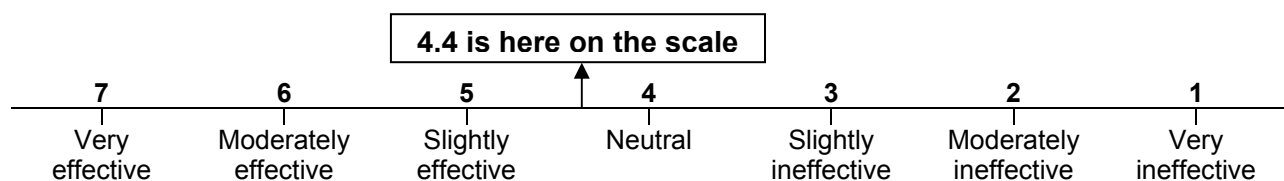
Response Choices on 7-point scale	Number of respondents who indicated the response choice	Value assigned to each response choice	Number of respondents multiplied by the Value assigned
Very effective	13	7	91
Moderately effective	20	6	120
Slightly effective	22	5	110
Neutral	47	4	188
Slightly <u>ineffective</u>	5	3	15
Moderately <u>ineffective</u>	8	2	16
Very <u>ineffective</u>	9	1	9
Total	124		549
Average		4.4	

Total number of respondents

(549 divided by 124)

Sum of the products

On the 7-point scale, a 4.4 falls between a 4 and a 5. This indicates that on average, respondents rated this issue somewhere between *neutral* and *slightly effective*.



Key Findings

Likelihood of a Catastrophic Event

Over half (54%) of the respondents reported that there was either a *high* or *medium* likelihood of a catastrophic event from a **terrorist attack** at their worksite, while 59% thought there was either a *high* or *medium* likelihood of a catastrophic **unintentional incident**. (See Table 2 below.)

Table 2: Likelihood of a Catastrophic Event

Likelihood	A terrorist attack	An unintentional incident
High	26.2%	21.1%
Medium	27.9%	37.4%
Low	45.9%	41.5%
<i>Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by the following? (Q3a. Terrorist Attack, Responses = 122, Missing = 2.4%); (Q3b. Unintentional Incident, Responses = 123, Missing = 1.6%)</i>		

Preventing a Catastrophic Event

The survey asked respondents about possible preventative actions taken by the company at their worksite since the attacks of 9/11. Two thirds of the sites (66%) reported that the company had assessed vulnerabilities at their sites. (See Table 3 below.) Other most frequently reported preventative actions included:

- 43% improved communication systems
- 38% updated warning systems
- 38% improved training and procedures
- 34% improved containment of potential hazardous releases
- 30% improved quality and availability of personal protective equipment

However, some preventative actions that could directly lessen the likelihood of a catastrophic event were reportedly taken less frequently, such as:

- 17% reduced volumes of hazardous substances
- 17% strengthened plant vessels, tanks, piping or other structures
- 14% improved the siting of hazardous substances or processes

Table 3: Possible Actions to Prevent a Catastrophic Event

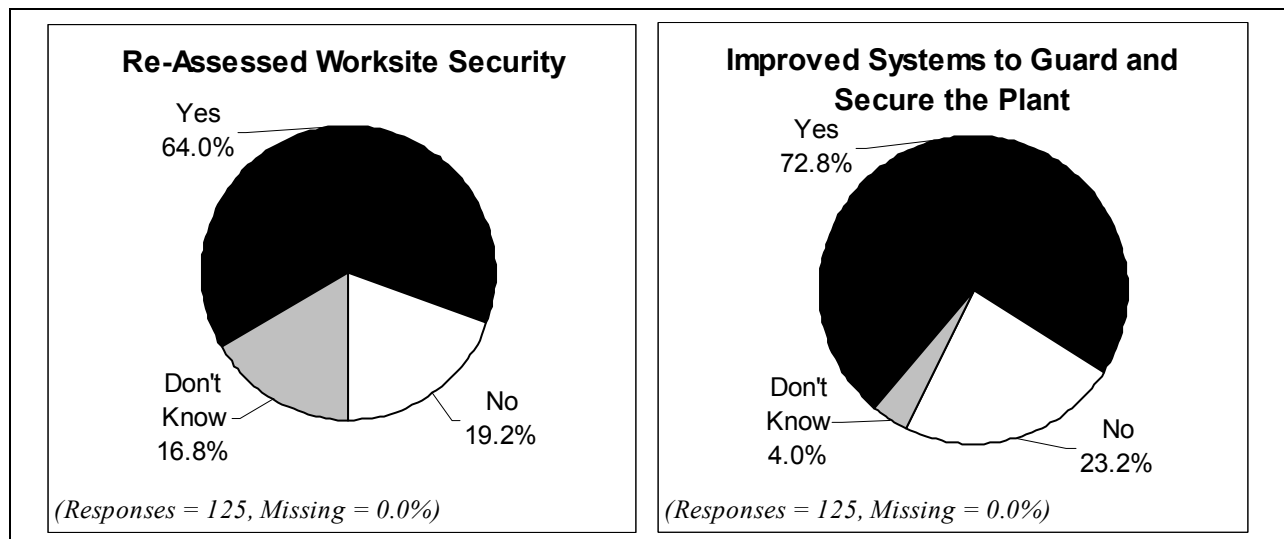
Possible actions to prevent a catastrophic event	Was action taken?		
	Yes	No	Don't Know
1. Assessed vulnerabilities	66.4%	12.0%	21.6%
2. Improved communication systems or equipment	42.7%	45.2%	12.1%
3. Updated warning systems	38.4%	48.8%	12.8%
4. Improved training and procedures to prevent possible terrorist attacks	37.6%	54.4%	8.0%
5. Improved containment of potential hazardous releases	33.6%	50.4%	16.0%
6. Improved quality and availability of personal protective equipment	30.4%	57.6%	12.0%
7. Reduced volumes of hazardous substances	16.8%	60.0%	23.2%
8. Strengthened plant vessels, tanks, piping or other structures	16.8%	65.6%	17.6%
9. Improved the siting of hazardous substances or processes to less vulnerable locations	13.6%	68.8%	17.6%
<i>Q4. Since September 11, 2001, has the company at your worksite taken any of the following actions to prevent a catastrophic event caused by a terrorist attack? (1 & 3-9: Responses = 125, Missing = 0.0%); (2: Responses = 124; Missing = 0.8%)</i> Note: Percents may not add up to 100% due to rounding			

Plant Security

Both actions to re-assess worksite security and improve plant security were taken more frequently than the preventative actions previously described. A substantial majority of all the study sites acted in this area.

- 64% re-assessed worksite security in the face of new terrorist threats
- 73% improved systems to guard and secure the plant. (See Chart 5 below.)

Chart 5: Plant Security



Q5. Since September 11, 2001, has the company at your worksite done any of the following related to plant security in the face of new terrorist threats?

Effectiveness of Prevention Actions

We examined how respondents assessed the effectiveness of actions taken by their company since 9/11 to *lessen the vulnerability* of their worksites to a catastrophic event caused by a **terrorist attack** or an **unintentional incident**. First we consider the effectiveness of company actions to *lessen vulnerability* to an event caused by a **terrorist attack**, and then the effectiveness of company actions to *lessen vulnerability* to an event caused by an **unintentional incident**. After, we report about the effectiveness ratings of all participants regarding company actions to *lessen vulnerabilities* to each of the possible causes, we consider differences among those who judged their sites to be at *high*, *medium*, or *low* likelihood of a catastrophic event.

Efforts to Lessen Vulnerability to a TERRORIST ATTACK. When asked about the overall effectiveness of actions taken by their company since 9/11 to *lessen the vulnerability* of their worksite to a catastrophic event caused by a **terrorist attack**, the respondents' ratings were as follows:

- 44% effective (includes: *very effective*, *moderately effective*, and *slightly effective*)
- 36% *neutral*
- 21% ineffective (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*)

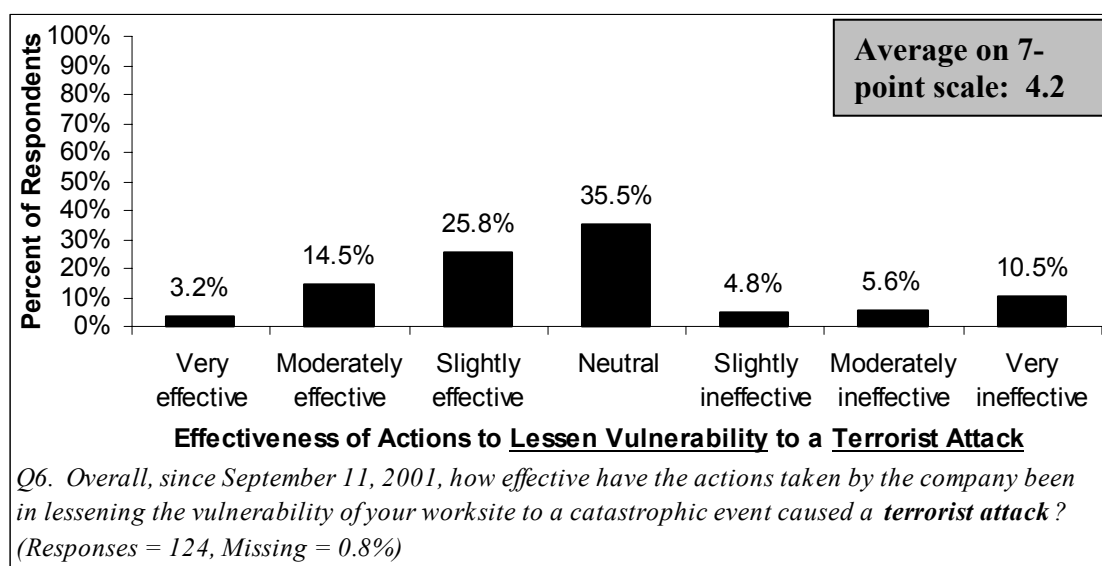
A very small contingent of respondents rated their sites actions as *very effective* (3%). Notably, more than one-third reported the effectiveness of the company actions as *neutral*. (See Table 4 and Chart 6, on next page.)

We also analyzed these effectiveness ratings by computing an average of all respondent answers using the 7-point scale with *very effective*=7, *moderately effective*=6, *slightly effective*=5, *neutral*=4, *slightly ineffective*=3, *moderately ineffective*=2, and *very ineffective*=1. Using this scale, on average respondents rated the actions of the company to reduce vulnerabilities to a **terrorist attack** at their sites a 4.2, only slightly more effective than *neutral*.

Table 4: Effectiveness of Prevention Actions to LESSEN VULNERABILITY to a Catastrophic Event Caused by a TERRORIST ATTACK

Effectiveness of Company Actions	Lessen Vulnerability to a TERRORIST ATTACK
Very effective	3.2%
Moderately effective	14.5%
Slightly effective	25.8%
Neutral	35.5%
Slightly <u>ineffective</u>	4.8%
Moderately <u>ineffective</u>	5.6%
Very <u>ineffective</u>	10.5%
Average on 7 point scale	4.2
<i>Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by the following?</i> <i>(Q6a. Responses = 124, Missing = 0.8%). Note: Percents may not add up to 100% due to rounding</i>	

Chart 6: Effectiveness of Prevention Actions to LESSEN VULNERABILITY to a Catastrophic Event Caused by a TERRORIST ATTACK



Note: Percents may not add up to 100% due to rounding.

Effectiveness of Actions to LESSEN VULNERABILITY by High, Medium, or Low Likelihood of a Catastrophic Event due to a TERRORIST ATTACK.

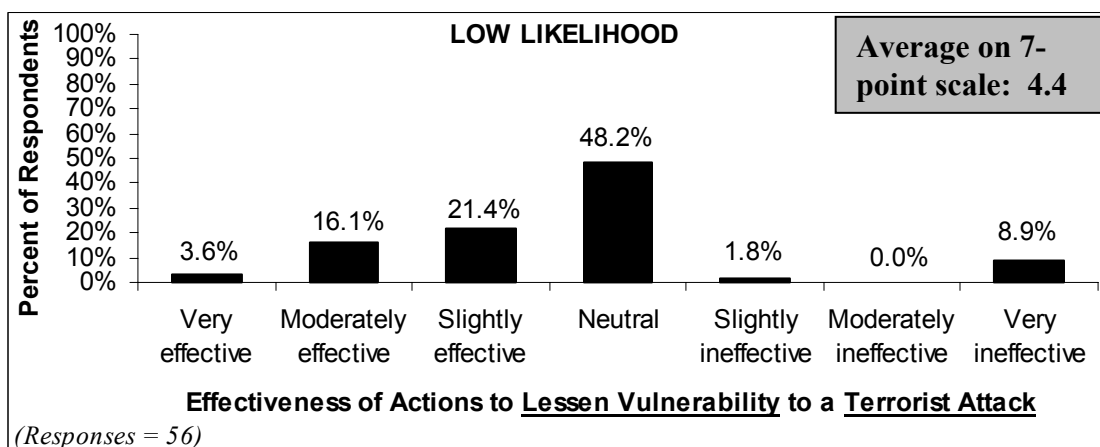
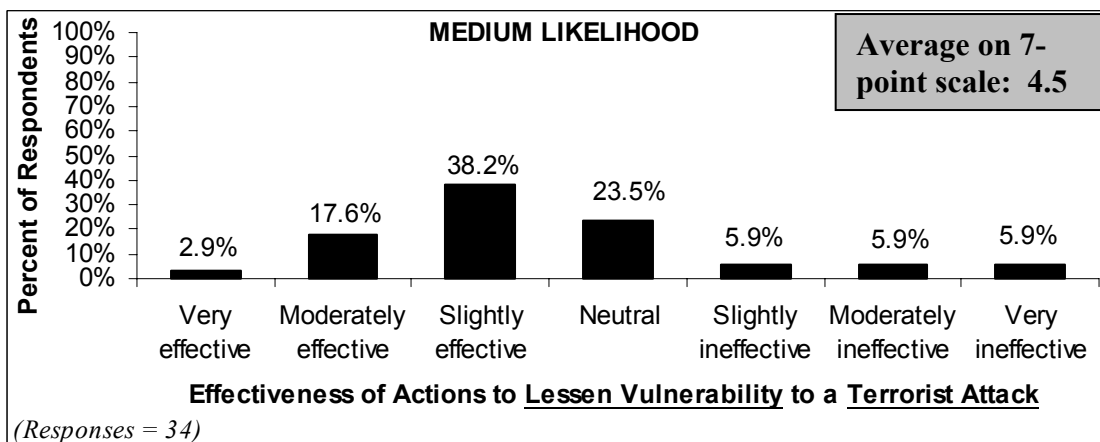
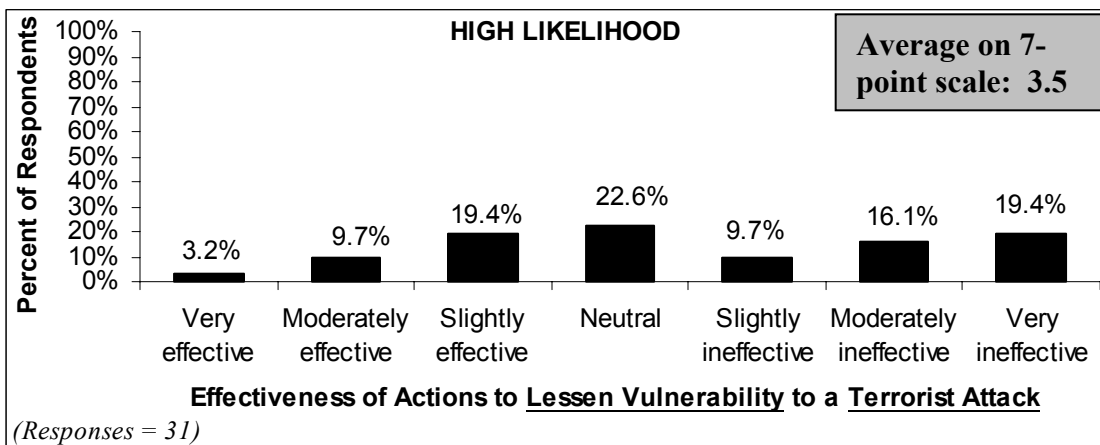
To further understand the perspectives of respondents, we also examined responses to this question by looking at differences in the effectiveness ratings of those respondents who thought there was a *high* likelihood of a catastrophic event due to a **terrorist attack** at their worksite, and at respondents who thought there was a *medium* or *low* likelihood of an event due to a **terrorist attack**. Noteworthy differences emerged when examining the effectiveness ratings of those who work at sites in which they perceive different vulnerability levels, such as:

- 45% of those who work at sites with a *high* vulnerability, rated company actions as ineffective, more than double either of the other two vulnerability level ratings of ineffective (*medium* vulnerability sites = 18%, *low* vulnerability sites = 11%).
- Respondents from *high* vulnerability worksites average effectiveness rating was 3.5, mid-way between *slightly ineffective* and *neutral*, while those of *medium* and *low* vulnerability sites were almost one point higher (*medium* vulnerability sites = 4.5, *low* vulnerability sites = 4.4). (See Table 5 and Chart 7 below.)

Table 5: Effectiveness of Actions to LESSEN VULNERABILITY by High, Medium, or Low Likelihood of a Catastrophic Event due to a TERRORIST ATTACK

Effectiveness of Actions to Lessen Vulnerability to a TERRORIST ATTACK	Likelihood of a Catastrophic Event at Site Caused by a TERRORIST ATTACK		
	High	Medium	Low
Very effective	3.2%	2.9%	3.6%
Moderately effective	9.7%	17.6%	16.1%
Slightly effective	19.4%	38.2%	21.4%
Neutral	22.6%	23.5%	48.2%
Slightly <u>ineffective</u>	9.7%	5.9%	1.8%
Moderately <u>ineffective</u>	16.1%	5.9%	0.0%
Very <u>ineffective</u>	19.4%	5.9%	8.9%
Average on 7 point scale	3.5	4.5	4.4
Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by the following? Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by the following? Note: Percents may not add up to 100% due to rounding			

Chart 7: Effectiveness of Actions to LESSEN VULNERABILITY by High, Medium, or Low Likelihood of a Catastrophic Event due to a TERRORIST ATTACK



Questions: Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by a **TERRORIST ATTACK**? Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by a **TERRORIST ATTACK**? Note: Percents may not add up to 100% due to rounding.

Efforts to Lessen Vulnerability to an UNINTENTIONAL INCIDENT. Overall, when asked about the effectiveness of actions taken by their company since 9/11 to *lessen the vulnerability* of their worksite to a catastrophic event caused by an **unintentional incident**, respondents rated the effectiveness of the actions of the company at their worksites as follows:

- 33% effective (includes: *very effective*, *moderately effective*, and *slightly effective*)
- 46% *neutral*
- 21% *ineffective* (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*)

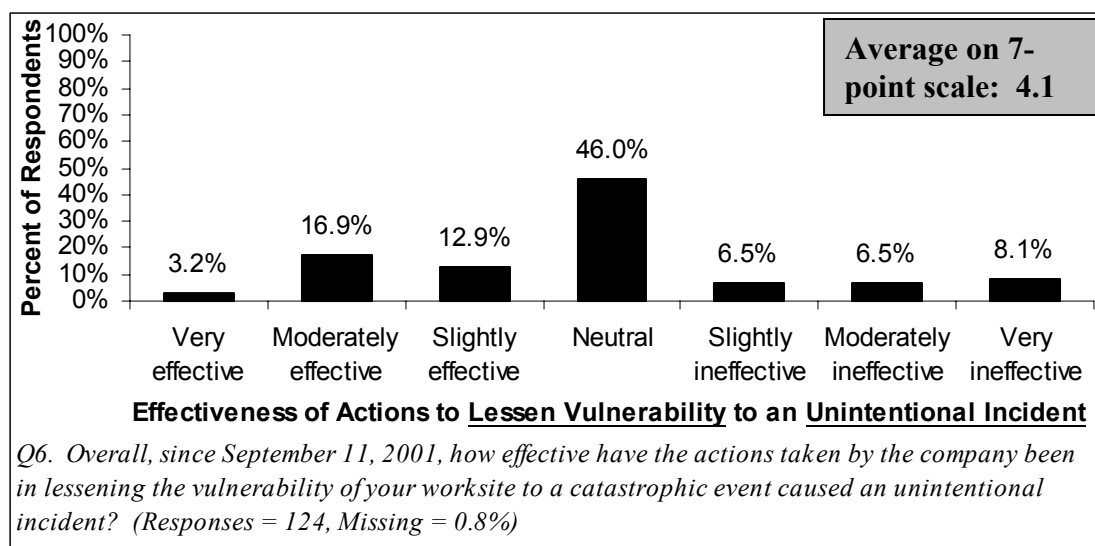
Similar to effectiveness ratings if an event were caused by a **terrorist attack**, a very small contingent of respondents rated their sites actions in *lessening vulnerability* to an **unintentional incident** as *very effective* (3%). Notably, nearly half reported the effectiveness of the company actions to *lessen vulnerability* to an **unintentional incident** as *neutral*. (See Table 6 and Chart 8 below.)

We also analyzed these effectiveness ratings by computing an average of all respondent answers using the 7-point scale described above. On average, respondents rated the actions of the company to reduce vulnerabilities to an **unintentional incident** at their sites a 4.1, only slightly more effective than *neutral*. This was about the same as the overall effectiveness average for reducing vulnerabilities to a catastrophic event caused by a **terrorist attack** (4.2).

Table 6: Effectiveness of Prevention Actions to LESSEN VULNERABILITY to a Catastrophic Event Caused by an UNINTENTIONAL INCIDENT

Effectiveness of Company Actions	Lessen Vulnerability to an UNINTENTIONAL INCIDENT
Very effective	3.2%
Moderately effective	16.9%
Slightly effective	12.9%
Neutral	46.0%
Slightly <u>ineffective</u>	6.5%
Moderately <u>ineffective</u>	6.5%
Very <u>ineffective</u>	8.1%
Average on 7 point scale	4.1
<i>Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by the following? (Q6b. Responses = 124, Missing = 0.8%). Note: Percents may not add up to 100% due to rounding</i>	

Chart 8: Effectiveness of Company Actions to LESSEN VULNERABILITY to a Catastrophic Event Caused by an UNINTENTIONAL INCIDENT



Effectiveness of Actions to LESSEN VULNERABILITY by High, Medium, or Low Likelihood of a Catastrophic Event due to an UNINTENTIONAL INCIDENT.

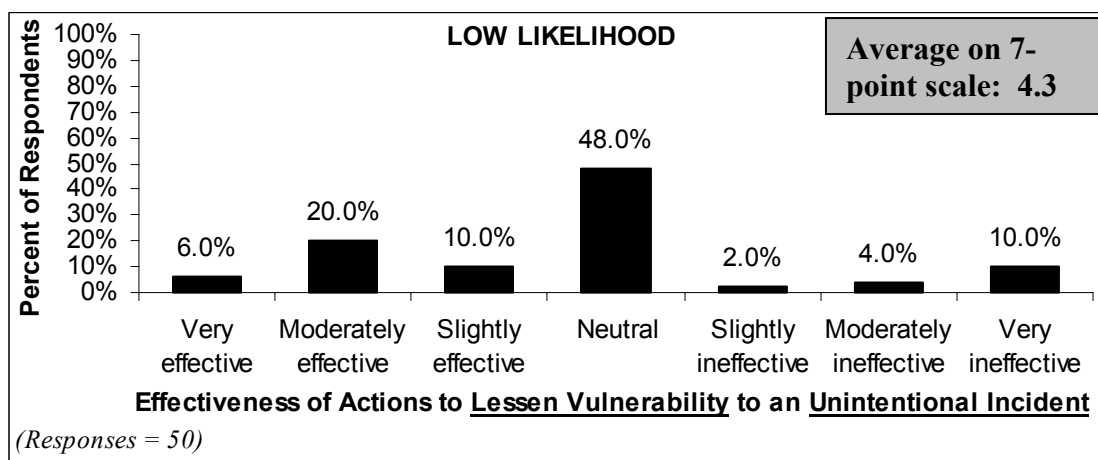
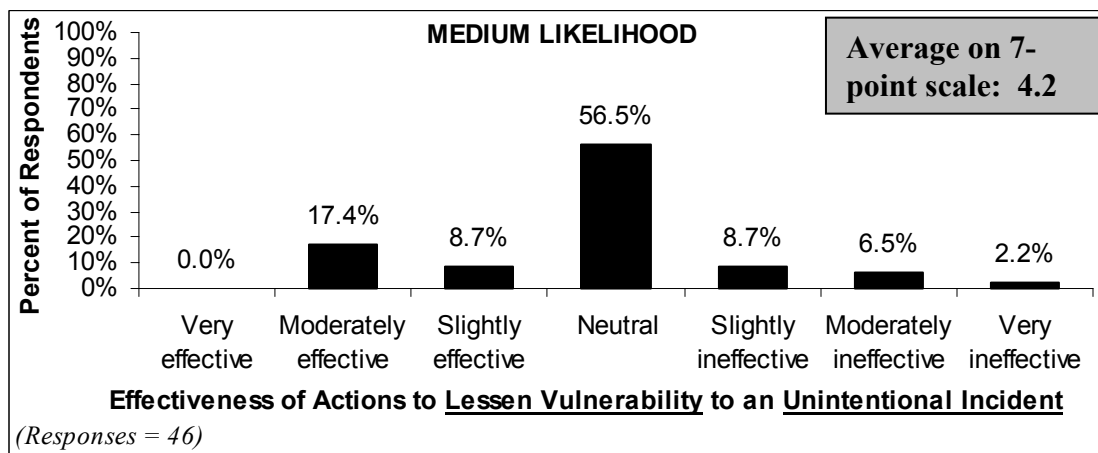
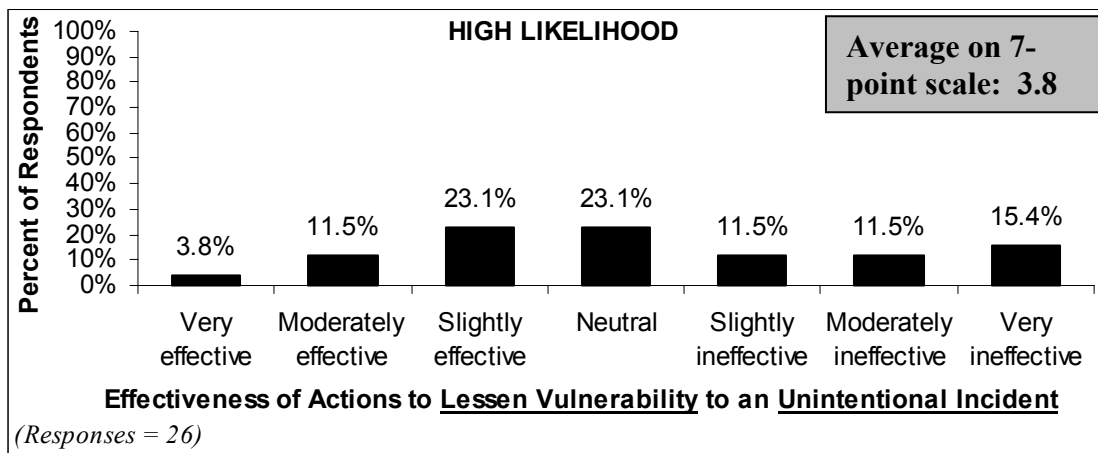
To further understand the perspectives of respondents, we also examined responses to this question by looking at differences in the effectiveness ratings of those respondents who thought there was a *high* likelihood of a catastrophic event due to an **unintentional incident** at their worksite, and at respondents who thought there was a *medium* or *low* likelihood of an event due to an **unintentional incident**. Noteworthy differences emerged when examining the effectiveness ratings of those who work at sites with perceived varying vulnerability levels, such as:

- 38% of those who rated their sites as *high* vulnerability, rated company actions as ineffective. This was more than double those who either rated the vulnerability of their sites as *medium* vulnerability (17% ineffective) or *low* vulnerability (16% ineffective).
- Over one-third of respondents who rated their sites as either *high* or *low* vulnerability to catastrophic event caused by an **unintentional event** rated their sites' efforts to *lessen vulnerability* as effective (*high* vulnerability = 38% effective, *low* vulnerability = 36% effective). In contrast, only about one-quarter of respondents who rated their sites as *medium* vulnerability rated their sites' efforts as effective (26%). (See Table 7 and Chart 9 below.)

Table 7: Effectiveness of Actions to LESSEN VULNERABILITY by High, Medium, or Low Likelihood of a Catastrophic Event due to an UNINTENTIONAL INCIDENT

Effectiveness of Actions to Lessen Vulnerability to an UNINTENTIONAL INCIDENT	Likelihood of a Catastrophic Event at Site Caused by an UNINTENTIONAL INCIDENT		
	High	Medium	Low
Very effective	3.8%	0.0%	6.0%
Moderately effective	11.5%	17.4%	20.0%
Slightly effective	23.1%	8.7%	10.0%
Neutral	23.1%	56.5%	48.0%
Slightly <u>ineffective</u>	11.5%	8.7%	2.0%
Moderately <u>ineffective</u>	11.5%	6.5%	4.0%
Very <u>ineffective</u>	15.4%	2.2%	10.0%
Average on 7 point scale	3.8	4.2	4.3
Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by the following? Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by the following? Note: Percents may not add up to 100% due to rounding			

Chart 9: Effectiveness of Actions to LESSEN VULNERABILITY by High, Medium, or Low Likelihood of a Catastrophic Event due to an UNINTENTIONAL INCIDENT



Questions: Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by an **UNINTENTIONAL INCIDENT**? Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by an **UNINTENTIONAL INCIDENT**? Note: Percents may not add up to 100% due to rounding.

Preparing to Respond

Another set of questions asked about actions taken by companies to be better prepared to respond to catastrophic events that might be caused by a **terrorist attack**. The most frequently reported company actions *in preparing to respond* to an event caused by a **terrorist attack** were as follows:

- 68% provided emergency response training to employees in the past 12 months
- 59% conducted emergency response drills for the plant site

Regarding whether the companies at their worksites had updated *facility* emergency response plans since 9/11, respondents reported the following:

- 47% updated emergency response plans
- 33% did not update emergency response plans
- 20% did not know whether the facility updated its emergency response plans

Regarding other company actions to *prepare to respond*, respondents reported the following:

- 46% informed local fire and police departments, HazMat teams, etc. about specific plant hazards
- 15% did not inform fire and police departments, HazMat teams, etc. about specific plant hazards, and 40% said they did not know whether the company at their site had communicated with emergency services
- 42% put additional procedures in place to inform employees of emergencies
- 30% updated shutdown procedures

When considering actions to inform local community services, or nearby residents or update the **community** Emergency Response Plan, respondents reported fewer actions and an increase in *don't know* responses.

- 23% informed local hospitals, health departments and emergency medical personnel about potential health threats from plant-specific exposures (20% did not inform these services, and 57% of respondents did not know)
- 21% updated the Emergency Response Plan for the **community** (34% did not update Emergency Response Plan for the **community**, 45% did not know)
- 15% put in place additional procedures to inform the **community** about an emergency (45% did not put in place additional procedures to inform the **community**, 40% did not know)

(See Table 8 below.)

Table 8: Possible Actions to Be Prepared to Respond to a Catastrophic Event

Possible actions to be prepared to respond to a catastrophic event	Was action taken?		
	Yes	No	Don't Know
1. Provided emergency response training to employees within the past 12 months	67.5%	26.0%	6.5%
2. Conducted emergency response drills for the plant site	58.9%	35.5%	5.6%
3. Updated Emergency Response Plan for the facility	46.8%	33.1%	20.2%
4. Informed local fire and police departments, HazMat teams, etc. about potential plant-specific hazards	45.5%	14.6%	39.8%
5. Put in place additional procedures to inform employees of an emergency (e.g., alarms, public address system)	41.9%	50.8%	7.3%
6. Updated shutdown procedures for critical equipment in an emergency	29.8%	41.1%	29.0%
7. Informed local hospitals, health departments, emergency medical personnel, etc. about the potential health threats from plant-specific exposures	23.4%	20.2%	56.5%
8. Updated Emergency Response Plan for the community	21.0%	33.9%	45.2%
9. Put in place additional procedures to inform the community about an emergency (e.g., alarms, public address system)	15.3%	45.2%	39.5%
Q7. Since September 11, 2001, has the company at your worksite taken any of the following actions to be better prepared to respond to a catastrophic event that was caused by a possible terrorist attack? (1&4: Responses = 123, Missing = 1.6%); (2-3 & 5-9: Responses = 124, Missing = 0.8%). Note: Percents may not add up to 100% due to rounding			

Effectiveness of Actions in Preparing to Respond to a Catastrophic Event

Another set of questions asked respondents about the effectiveness of actions taken by the company *in preparing to respond* to a catastrophic event caused by a **terrorist attack** or an **unintentional incident**. First we consider the effectiveness of company actions *in preparing to respond* to an event caused by a **terrorist attack**, and then the effectiveness of company actions *in preparing to respond* to an event caused by an **unintentional incident**. After, we report about the effectiveness ratings of all participants regarding company actions *in preparing to respond* to each of the possible causes, we consider differences among those who judged their sites to be at *high*, *medium*, or *low* likelihood of a catastrophic event.

Effectiveness of Actions in PREPARING TO RESPOND to an Event Caused by a TERRORIST ATTACK. Overall, when asked about the effectiveness of response preparedness actions taken by their company since 9/11 *in preparing to respond* to an event caused by a **terrorist attack**, respondents rated the effectiveness of the company actions as follows:

- 38% effective (includes: *very effective*, *moderately effective*, and *slightly effective*)
- 38% *neutral*
- 23% *ineffective* (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*)

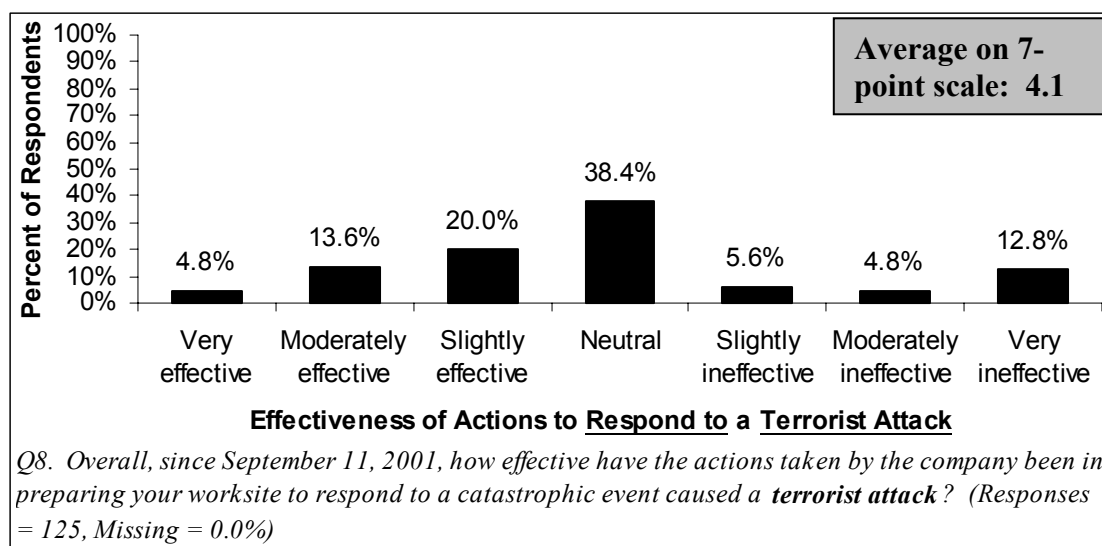
About 5%, a small contingent, of respondents rated their sites' actions *in preparing to respond* to an event caused by a **terrorist attack** as *very effective*. Notably, more than one third reported the effectiveness of their company's actions as *neutral*. (See Table 9 and Chart 10 below.)

We also analyzed these effectiveness ratings by computing an average of all respondent answers using the 7-point scale described earlier. Using this scale, on average, respondents rated the actions of the company *in preparing to respond* to an event caused by a **terrorist attack** at their sites a 4.1, or nearly *neutral*.

Table 9: Effectiveness of Actions in PREPARING TO RESPOND to a Catastrophic Event Caused by a TERRORIST ATTACK

Effectiveness of Company Actions	Respond to an Event Caused by a TERRORIST ATTACK
Very effective	4.8%
Moderately effective	13.6%
Slightly effective	20.0%
Neutral	38.4%
Slightly <u>ineffective</u>	5.6%
Moderately <u>ineffective</u>	4.8%
Very <u>ineffective</u>	12.8%
Average on 7 point scale	4.1
<i>Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused by the following? (Q8a. Responses = 125, Missing = 0.0%). Note: Percents may not add up to 100% due to rounding</i>	

Chart 10: Effectiveness of Actions in PREPARING TO RESPOND to a Catastrophic Event Caused by a TERRORIST ATTACK



Note: Percents may not add up to 100% due to rounding

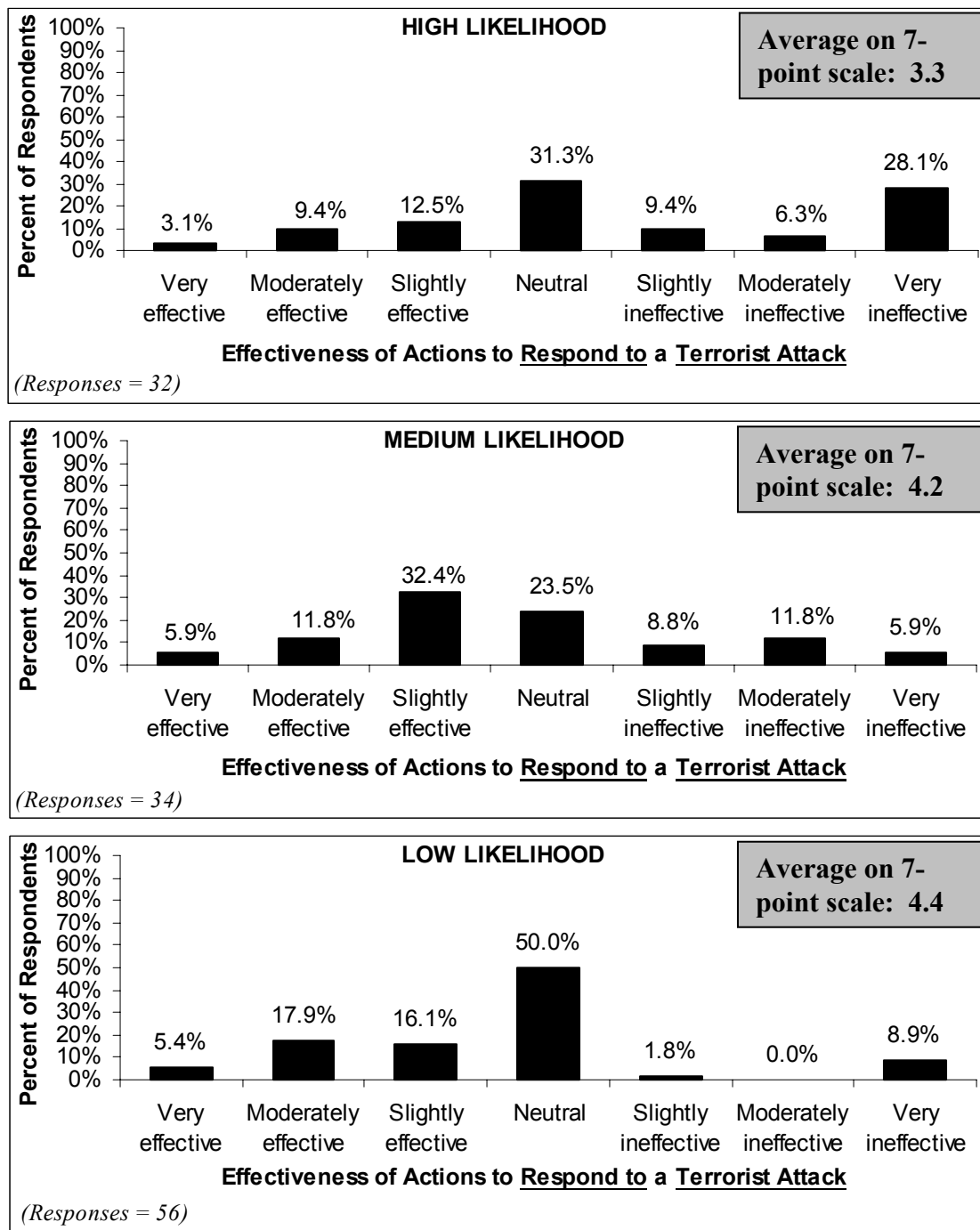
Effectiveness of Actions in PREPARING TO RESPOND to a Catastrophic Event Caused by a TERRORIST ATTACK by High, Medium, or Low Likelihood of Such an Event. To further understand the perspectives of respondents, we also examined responses to this question by looking at differences in the effectiveness ratings of those respondents who thought there was a *high* likelihood of a catastrophic event caused by a **terrorist attack** at their worksite, and at respondents who thought there was a *medium*, or *low* likelihood of an event caused by a **terrorist attack**. Noteworthy differences emerged when examining the effectiveness ratings of those who work at sites in which they perceive different vulnerability levels, such as:

- 44% of those who work at sites with a *high* vulnerability, rated company actions as ineffective, considerably higher than either of the other two vulnerability level ineffective ratings (*medium* vulnerability = 27% ineffective, *low* vulnerability = 11% ineffective)
- Respondents from *high* vulnerability worksites average effectiveness rating was 3.3 or between *neutral* and *slightly ineffective*. Respondents from *medium* and *low* vulnerability sites were about one point higher or between *neutral* and *slightly effective* (*medium* vulnerability = 4.2, *low* vulnerability = 4.4). (See Table 10 and Chart 11 below.)

Table 10: Effectiveness of Actions in PREPARING TO RESPOND by High, Medium, or Low Likelihood of a Catastrophic Event due to a TERRORIST ATTACK

Effectiveness of Actions in Preparing to Respond to Event Caused by a TERRORIST ATTACK	Likelihood of a Catastrophic Event at Site Caused by a TERRORIST ATTACK		
	High	Medium	Low
Very effective	3.1%	5.9%	5.4%
Moderately effective	9.4%	11.8%	17.9%
Slightly effective	12.5%	32.4%	16.1%
Neutral	31.3%	23.5%	50.0%
Slightly <u>ineffective</u>	9.4%	8.8%	1.8%
Moderately <u>ineffective</u>	6.3%	11.8%	0.0%
Very <u>ineffective</u>	28.1%	5.9%	8.9%
Average on 7 point scale	3.3	4.2	4.4
Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by the following? Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused by the following? Note: Percents may not add up to 100% due to rounding			

Chart 11: Effectiveness of Actions in PREPARING TO RESPOND by High, Medium, or Low Likelihood of a Catastrophic Event due to a TERRORIST ATTACK



Questions: Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by a **TERRORIST ATTACK**? Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused a **TERRORIST ATTACK**? Note: Percents may not add up to 100% due to rounding.

Effectiveness of Actions in PREPARING TO RESPOND to an Event Caused by an UNINTENTIONAL INCIDENT.

Overall, when asked about the effectiveness of actions taken by their company since 9/11 *in preparing to respond* to a catastrophic event caused by an **unintentional incident**, respondents rated the effectiveness of the company actions as follows:

- 44% effective (includes: *very effective*, *moderately effective*, and *slightly effective*)
- 38% *neutral*
- 18% ineffective (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*)

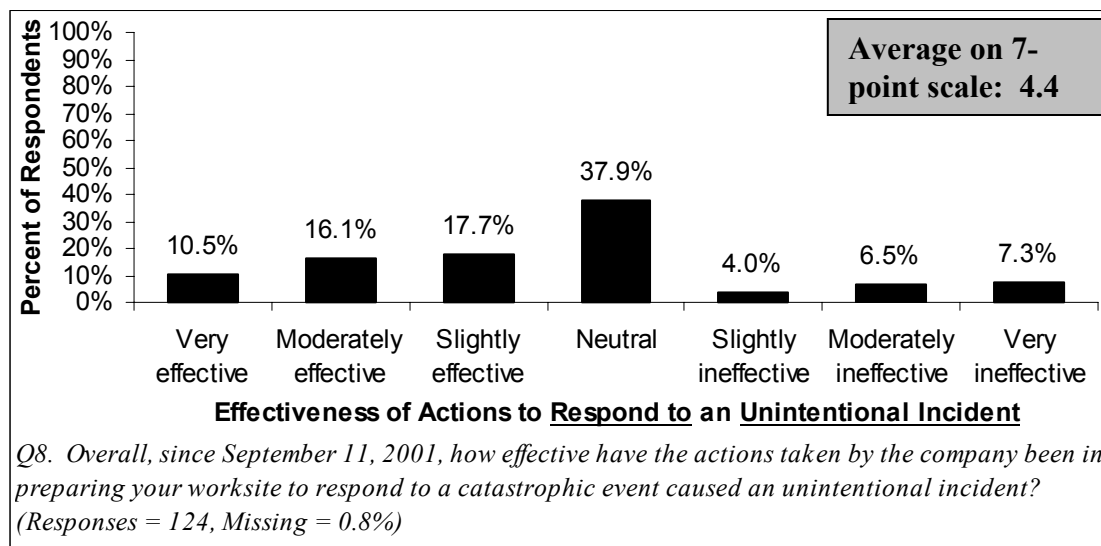
Eleven percent (11%) of respondents rated the actions of the companies at their worksites as *very effective*, more than twice as high as any of the overall *very effective* ratings. Notably, more than one-third (38%) reported the effectiveness of the company actions *in preparing to respond* to an **unintentional incident** as *neutral*. (See Table 11 and Chart 12 below.)

We also analyzed these effectiveness ratings by computing an average of all respondent answers using the 7-point scale described above. Respondents rated the actions of the company *in preparing to respond* to an event caused by an **unintentional incident** at their sites an average of 4.4, slightly more effective than they rated the effectiveness of actions *in preparing to respond* to a catastrophic event caused by a **terrorist attack** (4.1).

Table 11: Effectiveness of Actions in PREPARING TO RESPOND to a Catastrophic Event Caused by an UNINTENTIONAL INCIDENT

Effectiveness of Company Actions	Prepare to Respond to an UNINTENTIONAL INCIDENT
Very effective	10.5%
Moderately effective	16.1%
Slightly effective	17.7%
Neutral	37.9%
Slightly <u>ineffective</u>	4.0%
Moderately <u>ineffective</u>	6.5%
Very <u>ineffective</u>	7.3%
Average on 7 point scale	4.4
<i>Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused by the following? (Q8b. Responses = 124, Missing = 0.8%). Note: Percents may not add up to 100% due to rounding</i>	

Chart 12: Effectiveness of Actions in PREPARING TO RESPOND to a Catastrophic Event Caused by an UNINTENTIONAL INCIDENT



Note: Percents may not add up to 100% due to rounding

Effectiveness of Actions in PREPARING TO RESPOND by High, Medium, or Low Likelihood of an Event Caused by an UNINTENTIONAL INCIDENT.

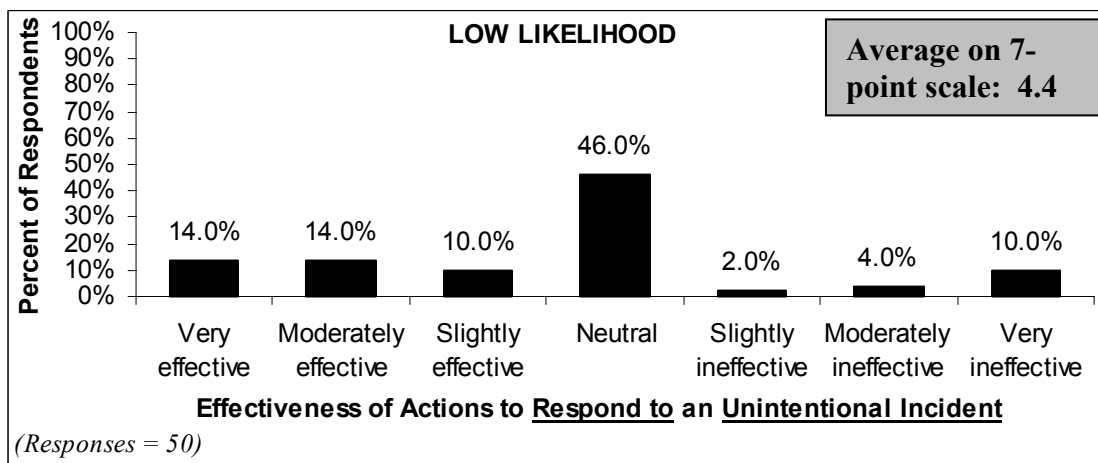
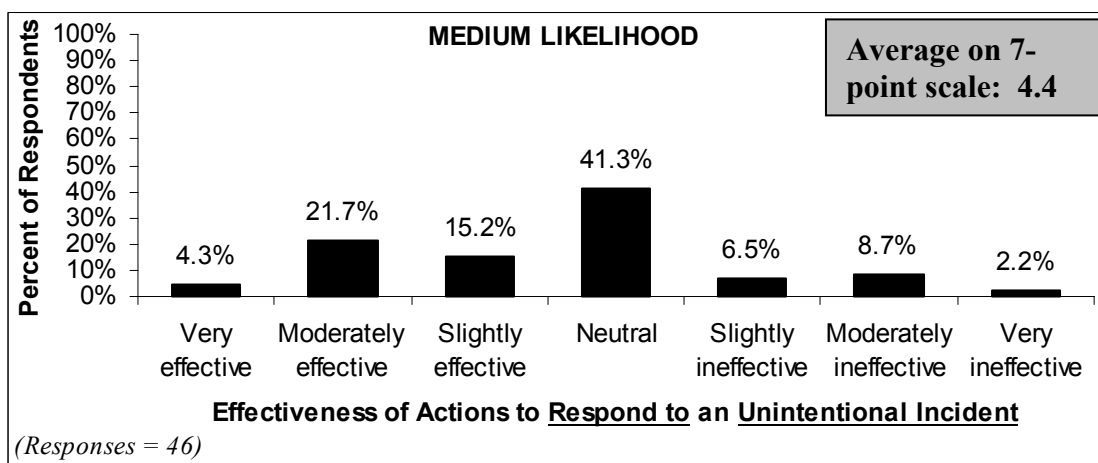
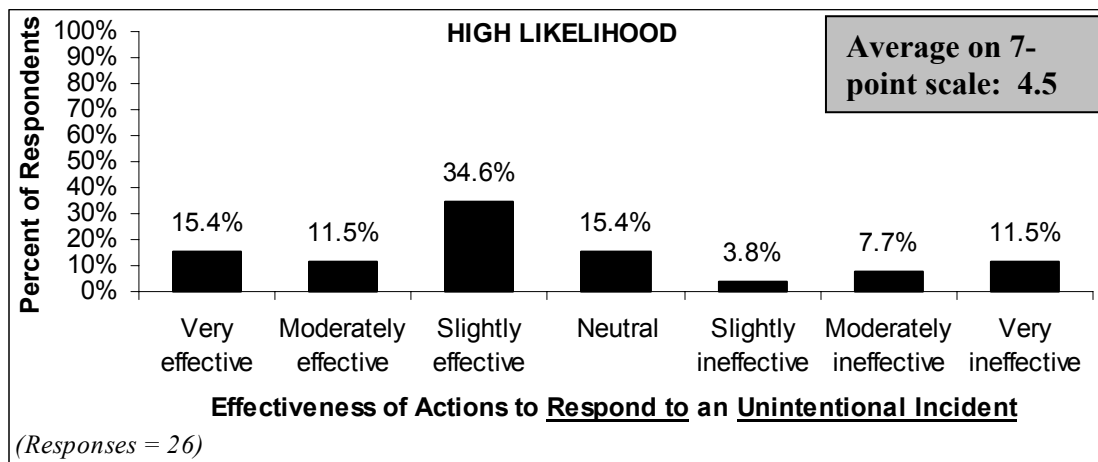
To further understand the perspectives of respondents, we also examined responses to this question by looking at differences in the effectiveness ratings of those respondents who thought there was a *high* likelihood of a catastrophic event caused by an **unintentional incident** at their worksite, and those who thought there was a *medium* or *low* likelihood of such an event. The average effectiveness for *preparing to respond* was about the same across the different vulnerability levels (*high* vulnerability = 4.5, *medium* vulnerability = 4.4, *low* vulnerability = 4.4). However, noteworthy differences emerged when examining the levels of effectiveness of those who work at sites perceived to face a *high* likelihood of an **unintentional incident** as compared to those with *medium* or *low* likelihood of **unintentional incidents**, such as:

- 62% of those who work at sites that they rated as *high* vulnerability, rated company actions *in preparing to respond* as effective. This was higher than any other effectiveness rating in this survey. This is notably higher than either of the other two vulnerability level groups' effectiveness ratings regarding their sites' actions *in preparing to respond* to a catastrophic event caused by an **unintentional incident** (*medium* vulnerability = 41% effective; *low* vulnerability = 38% effective).
- Respondents who rated sites as either *medium* or *low* vulnerability were more than twice as likely to rate the effectiveness of their sites' actions *in preparing to respond* to an event caused by an **unintentional incident** as *neutral* (*medium* vulnerability = 41% *neutral* effectiveness, *low* vulnerability = 46% *neutral* effectiveness), when compared to respondents from *high* vulnerability sites (15% *neutral* effectiveness). (See Table 12 and Chart 13 below.)

Table 12: Effectiveness of Actions in PREPARING TO RESPOND by High, Medium, or Low Likelihood of a Catastrophic Event Caused by an UNINTENTIONAL INCIDENT

Effectiveness of Actions in Preparing to Respond to an Event Caused by an UNINTENTIONAL INCIDENT.	Likelihood of a Catastrophic Event at Site Caused by an UNINTENTIONAL INCIDENT		
	High	Medium	Low
Very effective	15.4%	4.3%	14.0%
Moderately effective	11.5%	21.7%	14.0%
Slightly effective	34.6%	15.2%	10.0%
Neutral	15.4%	41.3%	46.0%
Slightly <u>ineffective</u>	3.8%	6.5%	2.0%
Moderately <u>ineffective</u>	7.7%	8.7%	4.0%
Very <u>ineffective</u>	11.5%	2.2%	10.0%
Average on 7 point scale	4.5	4.4	4.4
<p><i>Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by the following? Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused the following? Note: Percents may not add up to 100% due to rounding</i></p>			

Chart 13: Effectiveness of Actions in PREPARING TO RESPOND by High, Medium, or Low Likelihood of a Catastrophic Event Caused by an UNINTENTIONAL INCIDENT



Questions: Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by an **UNINTENTIONAL INCIDENT**? Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused an **UNINTENTIONAL INCIDENT**? Note: Percents may not add up to 100% due to rounding.

Training: Quality, Scope, and Need

Training employees is a key vehicle in *preventing* or *preparing to respond* to a catastrophic event whether caused by a **terrorist attack** or an **unintentional incident**. Survey questions related to training focused on the following: the extent to which companies provided training to employees since 9/11, whether companies improved training since 9/11, and whether respondents thought members of the bargaining unit at their facilities needed additional training.

Extent of Training. Sixty-eight percent (68%) of employees reported that their employers had provided emergency response training to employees within the *past 12 months*. Regarding *how many* employees at their sites received training *since 9/11*, respondents reported the following:

- About one-third reported that no employees at their sites received training about either *preventing* (34%) or *responding to* (28%) a catastrophic event caused by a terrorist attack.
- 38% reported that half or fewer employees had received *response preparedness* training.
- 27% reported that half or fewer employees had received training in *prevention*.
- 15% or fewer said that more than half to all employees had received *prevention* (15%) or *response preparedness* (13%) training. (See Charts 14 and 15 below.)
- Notably, a sizeable percent of respondents reported that they did not know about training to *prevent* (25%), or *respond* (21%) to catastrophic events at their sites.

Chart 14: Percent of Employees Trained to Prevent a Catastrophic Event Caused by a Terrorist Attack

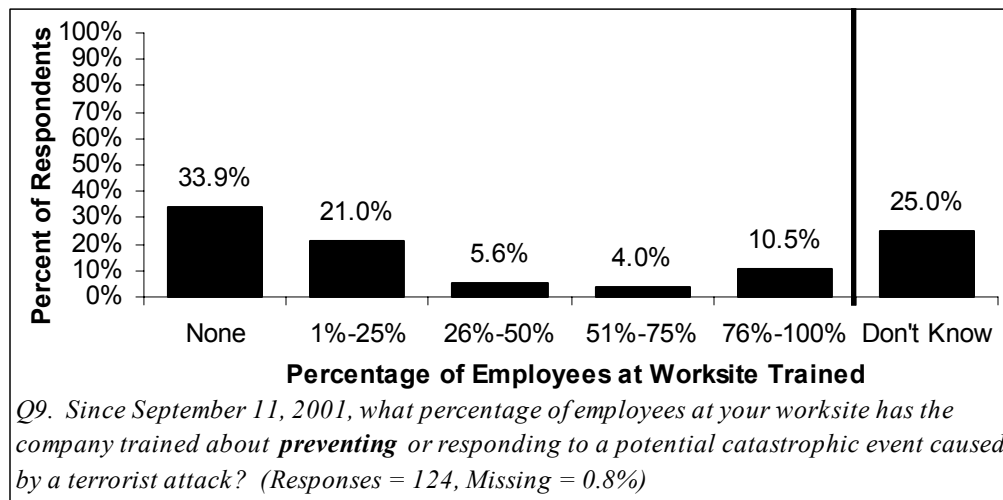
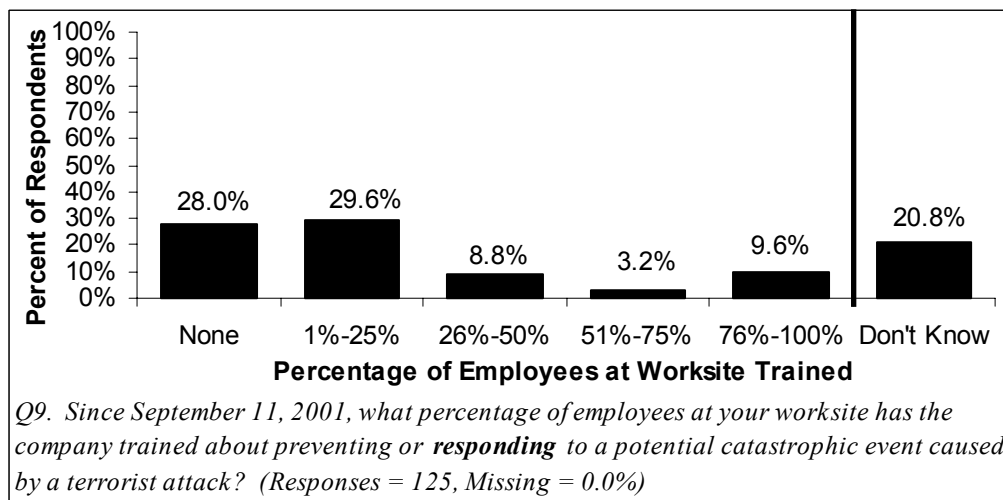


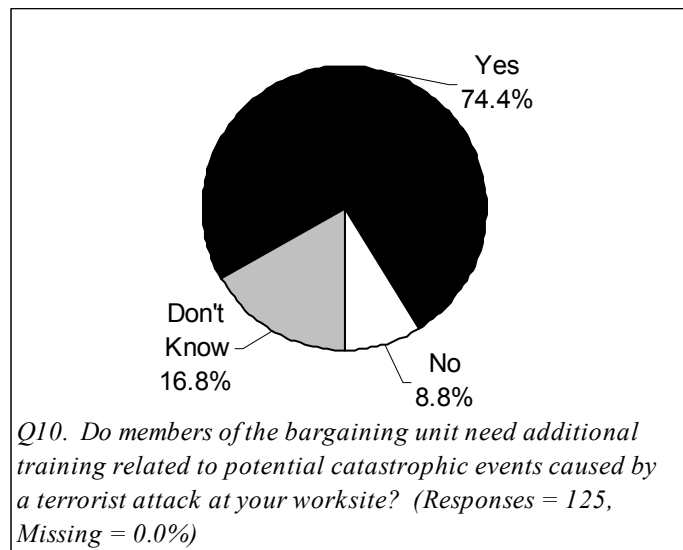
Chart 15: Percent of Employees Trained to Respond to a Catastrophic Event Caused by a Terrorist Attack



Need for Additional Training. When asked whether members of the PACE bargaining unit needed additional training related to a potential catastrophic event caused by a **terrorist attack**, respondents reported the following:

- Almost three-quarters (74%) said additional training for members of the bargaining unit was needed.
- 9% said *no* additional training was needed
- 17% responded that they *don't know* whether additional training is needed. (See Chart 16 below.)

Chart 16: Bargaining Unit Needs Additional Training Related to Terrorist Attacks



Involvement in Incident Prevention and Response by Local Unions, Hourly Workers, or Communities

The last parts of the survey questionnaire assessed whether *the company had taken actions* to involve the local union, hourly workers or the community regarding plans or actions related to preventing or responding to potential catastrophic events caused by a **terrorist attack**; and also assessed whether *the local union had taken actions* to improve the company's plans or action in this area. The findings regarding involvement follow.

Company Initiated Action. Overall, respondents reported relatively few actions initiated by the company to involve the local union, hourly workers, or the community regarding its plans or actions to prevent or respond to a catastrophic event caused by a possible **terrorist attack**. Respondents reported the following:

- 28% or fewer reported some type of involvement of any group (local union, hourly workers, community).
- An overwhelming majority report no involvement by local unions or hourly workers.
- About one-quarter reported involvement of the local union and hourly workers in making recommendations (local union = 25%, hourly workers = 22%), and being informed by the company (local union = 21%, hourly workers = 28%)
- The highest area in which the company involved hourly workers and the community was in informing them about plans or possible actions to respond to or prevent a catastrophic event caused by a terrorist attack (hourly workers = 28%, community = 12%).
- Almost two-thirds (63%-66%) reported not knowing if or how the company involved the community. (See Table 13 below.)

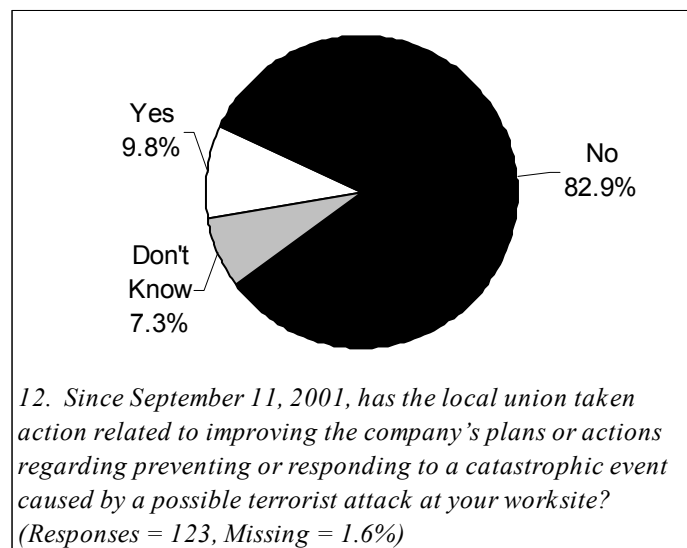
When explaining how the company involved others, the most common methods reported included: meetings, committees, letters, and training and drills.

Table 13: Possible Actions Taken by the Company to Involve Others

Possible actions taken by the company to work with the Local Union, Hourly Workers, and the Community	Yes	No	Don't know
LOCAL UNION			
Informed	21.3%	74.6%	4.1%
Involved in Assessment	9.8%	86.9%	3.3%
Involved in Making Recommendations	25.2%	65.0%	9.8%
HOURLY WORKERS			
Informed	27.6%	61.8%	10.6%
Involved in Assessment	12.1%	78.2%	9.7%
Involved in Making Recommendations	21.8%	64.5%	13.7%
COMMUNITY			
Informed	12.2%	24.4%	63.4%
Involved in Assessment	8.1%	26.8%	65.0%
Involved in Making Recommendations	7.3%	26.8%	65.9%
<i>Q11, 13, 14. Since September 11, 2001, has the company worked with {the local union/hourly workers/the community} regarding its plans or actions to prevent or respond to a catastrophic event caused by a possible terrorist attack at your worksite?</i>			

Local Union Action. Consistent with findings from above where 25% or fewer of local unions reported being involved by the companies at their sites regarding incident prevention or response, an overwhelming majority of respondents (83%) reported that their local union had taken no action related to improving the company's plans or actions regarding preventing or responding to a catastrophic event caused by a possible **terrorist attack** at their worksite. Ten percent (10%) reported that the local union had taken action, while 7% said they did not know about any action. (See Chart 17 below.) Of those respondents who indicated actions taken by the local union, they reported that the local union had asked the company for additional employee training, and had offered for the local union to work with the company on these issues.

Chart 17: Local Union Taken Action



Study Limitations

This preliminary study and its data are limited and thus these findings cannot be generalized broadly to represent other sites either within or outside of PACE. The key limitations follow:

- ❖ The survey looked at employee perceptions and did not include an independent assessment of actual actions taken by companies.
- ❖ No baseline or prior data about the perceptions of key people within PACE local unions about their site's vulnerability to a catastrophic event, or of their employer's programs prior to 9/11 are available.
- ❖ The study sampling technique may be limited. The survey respondents were selected from a list of Risk Management Program (RMP) sites. However, due to security limitations imposed since 9/11, the most accurate lists of RMP sites are not readily available. Therefore:
 - Some sites which did respond may not be RMP sites any longer
 - Some sites which were not surveyed may be RMP sites at this time
 - Some sites may be high hazard, RMP-like sites but do not have the RMP designation that are not included in this study.
 - Respondents may have underreported whether their sites are RMP sites because the RMP designation has more to do with environmental management than with worker safety. Therefore, respondents may be unfamiliar with this designation.
- ❖ The health and safety expertise of respondents and their knowledge of potential catastrophic incidents may have varied from site to site depending on who at the local union responded. While PACE requested that the local union president designate a person knowledgeable about what the company and the local union might be doing to lower the vulnerability of their site, and suggested that appropriate people might include: the local union president, secretary-treasurer, chair or member of the Health and Safety Committee, Health and Safety or TOP Representative, or other health and safety activist. The diversity of respondents' knowledge from site to site may contribute to the data being uneven in some cases, especially regarding those who responded "don't know" to many questions.
- ❖ We are unable to conduct any follow-up with the actual respondents because the survey was anonymous so we do not know who completed it.

Readers should be careful not to assume that the findings can be generalized broadly to represent all PACE represented workplaces, all PACE represented sites from a specific industrial sector, or RMP sites in general.

Discussion and Conclusions

The findings contained in this report begin to provide evidence about where sites represented by PACE Union are in preventing and preparing to respond to catastrophic events caused by a terrorist attack or an unintentional incident. We believe it points out areas that may be in need of further examination, discussion, and action to assure that workers at PACE represented workplaces and the communities in which they are located have the best levels of prevention and response possible.

We suggest that PACE staff and leaders at the International level, as well as local union leaders consider how to use the findings and discussion contained in this report. We hope that this report and subsequent dialogue enables you to brainstorm and determine which actions to initiate to advance the opportunities that may have been revealed in these findings.

Reminders about the Data

When you review and deliberate about which actions to take from these findings, it is important to remember all the “Limitations” section statements but especially the following limitations of the report:

- ❖ This survey looked at perceptions only. It did not include an independent assessment of, for example, which employees actually received training since September 11, 2001, or which actions companies actually took.
- ❖ The survey respondents were selected from a list of Risk Management Program (RMP) sites. However, due to security limitations imposed since 9/11, the most accurate lists of RMP sites are not readily available. Therefore, some sites who did respond may not actually be RMP sites any longer, and some sites who were not surveyed may actually be RMP sites at this time. Readers should be careful not to assume that the findings can be generalized broadly to represent all PACE represented workplaces, all PACE represented sites from a specific industrial sector, or RMP sites in general.

Possibility and Likelihood of A Catastrophic Event

Ninety-five percent (95%) of the respondents reported that their sites have large enough quantities of chemicals to cause a catastrophic event if those materials were involved in a fire, explosion or release. Over half of the sites indicated that they face a *high* or *medium* likelihood of a catastrophic event due to a **terrorist attack** (54%) or **unintentional incident** (59%).

What Companies Are Doing

Company Preventative Actions. In response to these vulnerabilities respondents' reports suggest that most employers assessed their sites vulnerabilities (66%) and worksite security (64%). Company actions appeared to focus more frequently on security, with almost three-quarters (73%) of the respondents reporting improved systems to guard and secure the plant.

All other company actions were reportedly taken at less than half of the sites. These included improved communication systems (43%), improved training and procedures to prevent possible terrorist attacks (38%), updated warning systems (38%), improved containment of potential hazardous releases (34%), and improved quality and availability of personal protective equipment (30%).

Furthermore, some of the most preventative actions that could directly reduce the likelihood of a catastrophic event were reportedly taken with the least frequency, such as: reduced volumes of hazardous substances (17%); strengthened plant vessels, tanks, piping or other structures (17%); and improved the siting of hazardous substances or processes (14%).

Company Actions To Prepare To Respond. When *preparing to respond* to an event caused by a **terrorist attack**, 68% of the companies provided emergency response training to employees in the past 12 months, and 59% conducted emergency response drills for the plant site. Only about half (47%) of the respondents reported that the companies at their worksites had updated *facility* emergency response plans since 9/11. Other company actions to *prepare for responding* to an event included: 46% informed local fire and police departments, HazMat teams, etc. about specific plant hazards, 42% put additional procedures in place to inform employees of emergencies, and 30% updated shutdown procedures.

However, respondents' use of the *don't know* choice increased considerably in the set of questions about actions to inform local community services, or nearby residents or update the **community** Emergency Response Plan. While 23% knew their employers had informed local hospitals, health departments and emergency medical personnel about potential health threats from plant-specific exposures, 20% said these services were not informed, and 57% reported *don't know*.

It appears that the more distant from rank and file hourly worker experiences the survey queried, the greater the percentage of *don't know* answers. It appears that the gap between hourly workers and community emergency response planning is great.

Effectiveness Of Company Prevention and Response Actions

Effectiveness of Prevention Actions. Less than half (44%) of the respondents indicated that their company's preventative actions, including security efforts, were effective (includes: *very effective*, *moderately effective*, and *slightly effective*) in *reducing the vulnerabilities* of their site to a catastrophic event caused by a **terrorist attack**. Over one-third (36%) were *neutral* about the effectiveness, and one-fifth (21%) said the actions were ineffective (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*).

When considering the effectiveness of actions to prevent an event caused by an **unintentional incident**, only one-third (33%) said the company's actions were effective. Forty-six percent (46%) were *neutral* about the effectiveness, and one-fifth (21%) said the actions were ineffective to *reduce their sites' vulnerabilities* to an event caused by an **unintentional incident**.

On average, respondents rated the effectiveness of company actions to *prevent* a catastrophic event only slightly above *neutral* (**terrorist attack** = 4.2 and **unintentional incident** = 4.1) on a 7-point scale.

Respondent assessment of the effectiveness of the company actions to *prevent* a catastrophic event were even more striking when considering perceptions of a site's vulnerability to a catastrophic event (*high*, *medium*, *low*). Forty-five percent (45%) of the respondents who rated their sites with a *high* vulnerability level also rated their company's actions to *prevent* an event caused by a **terrorist attack** as ineffective. This ineffective rating is notably higher than ratings given by respondents from *medium* or *low* vulnerability sites who rated their company's actions regarding an event caused by a **terrorist attack** as follows: 18% ineffective and 11% ineffective, respectively.

Furthermore, we noted with interest that respondents rated the effectiveness of company actions to *prevent* an event caused by a **terrorist attack** (44%) higher than one caused by an **unintentional incident** (33%). Is it possible that additional security measures may have reduced some vulnerabilities to terrorist attacks, but that actions to address the inherent dangers of hazardous materials and processes at these industrial workplaces have yet to be taken? (See Table 14, Effectiveness of Prevention and Response Actions)

Effectiveness of Response Actions. Only 38% of the respondents indicated that their company's actions *in preparing to respond* to an event caused by a **terrorist attack** were effective (includes: *very effective*, *moderately effective*, and *slightly effective*). As many were *neutral* (38%) about the effectiveness of actions *in preparing to respond* to such an event, while almost one quarter (23%) said the actions were ineffective (includes: *very ineffective*, *moderately ineffective*, and *slightly ineffective*). When considering the effectiveness of actions *in preparing to respond* to an event caused by an **unintentional incident**, forty-four percent (44%) said the company's actions were effective. The same percentage (38%) were *neutral* regarding the effectiveness of

preparing to respond to an **unintentional incident** as they were regarding preparations to respond to an event caused by a **terrorist attack**. Eighteen percent (18%) said the company's actions were ineffective.

On average, respondents rated the effectiveness of company actions to *respond* to a catastrophic event caused by a **terrorist attack** only slightly above *neutral* (4.1) on a 7-point scale. However, respondents' perceptions of the effectiveness of employers' actions *in preparing to respond* to an event caused by an **unintentional incident** was slightly higher at 4.4, midway between *neutral* and *slightly effective*.

When rating the effectiveness of the company actions *in preparing to respond*, respondents from sites rated as having a *high* likelihood of a catastrophic event reported considerable differences from the *medium* or *low* likelihood sites. When considering responding to an event caused by a **terrorist attack**, 44% of respondents who characterized their sites as *high* risk found their company's actions ineffective. This rating is considerably higher than the ineffectiveness ratings given by respondents at sites with a *medium* or *low* likelihood of an event (*medium* likelihood = 27% ineffective, *low* likelihood = 11% ineffective). However, most notable is that when considering the effectiveness of company actions *in preparing to respond* to an **unintentional incident**, the *highest* risk respondents rated their employers' actions with the highest levels of effectiveness in the survey, with 62% indicating that their company's actions were effective.

Is it possible that the sites characterized as *high* risk have developed extensive emergency response programs to respond to **unintentional incidents**, especially when compared to sites that ranked themselves with a *medium* or *low* likelihood of experiencing a catastrophic event caused by an **unintentional incident**? Or could it be that employees from *high* risk sites have confidence in their employer's response plans as a coping/survival strategy for working in workplaces that are intrinsically high hazard?

Table 14: Effectiveness of Prevention and Response Actions

Cause of Event and Report from whom	Average on 7-point scale	Effective*	Neutral	<u>In</u> effective**
PREVENTION				
Terrorist Attack				
All Respondents	4.2	43.5%	35.5%	20.9%
High Likelihood Respondents	3.5	32.3%	22.6%	45.2%
Medium Likelihood Respondents	4.5	58.7%	23.5%	17.7%
Low Likelihood Respondents	4.4	41.1%	48.2%	10.7%
Unintentional Incident				
All Respondents	4.1	33.0%	46.0%	21.1%
High Likelihood Respondents	3.8	38.4%	23.1%	38.4%
Medium Likelihood Respondents	4.2	26.1%	56.5%	17.4%
Low Likelihood Respondents	4.3	36.0%	48.0%	16.0%
RESPONSE				
Terrorist Attack				
All Respondents	4.1	38.4%	38.4%	23.2%
High Likelihood Respondents	3.3	25.0%	31.3%	43.8%
Medium Likelihood Respondents	4.2	50.1%	23.5%	26.5%
Low Likelihood Respondents	4.4	39.4%	50.0%	10.7%
Unintentional Incident				
All Respondents	4.4	44.3%	37.9%	17.8%
High Likelihood Respondents	4.5	61.5%	15.4%	23.0%
Medium Likelihood Respondents	4.4	41.2%	41.3%	17.4%
Low Likelihood Respondents	4.4	38.0%	46.0%	16.0%
<p>Q3. What is the likelihood of your worksite experiencing a catastrophic event involving fire, explosion, or a hazardous release caused by the following? Q6. Overall, since September 11, 2001, how effective have the actions taken by the company been in lessening the vulnerability of your worksite to a catastrophic event caused by the following? Q8. Overall, since September 11, 2001, how effective have the actions taken by the company been in preparing your worksite to respond to a catastrophic event caused the following?</p> <p>Note: Percents may not add up to 100% due to rounding.</p> <p>*EFFECTIVE: Includes those who responded <i>very effective</i>, <i>moderately effective</i>, and <i>slightly effective</i></p> <p>**INEFFECTIVE: Includes those who responded <i>very ineffective</i>, <i>moderately ineffective</i>, and <i>slightly ineffective</i></p>				

Training

All the survey respondents included in this report's findings indicated that their sites have hazardous materials in quantities large enough to lead to a catastrophic event if involved in fire, explosion or other releases. However, training to *prevent* or *respond* to these risks appears to be lacking. About one-third of respondents reported that no employees at their sites received training about *preventing* (34%) or *responding* (28%) to a catastrophic event caused by a **terrorist attack** since 9/11. At sites where some training occurred, only 38% reported that half or fewer employees received *response preparedness* training, and only 27% reported that half or fewer employees received

prevention training. Notably, a sizeable percent of respondents reported not knowing about training to *prevent* (25%), or *respond* (21%) to catastrophic events at their sites. Seventy-four percent (74%) reported that additional training was needed for members of their bargaining unit.

The findings indicate that when training did occur, it was more focused on *responding* to emergencies, rather than *preventing* them. The amount of training among the workforce appears very limited, with the majority of the survey sites reporting that fewer than half of the employees have participated in training about *preventing* or *responding* to a potential catastrophic event caused by a terrorist attack. Furthermore, almost three-quarters of the respondents indicated that their members need additional training. These findings suggest a strong need for additional prevention and response training among PACE represented sites.

Involvement Of Hourly Workers, the Local Union Or Community

An overwhelming majority of respondents reported no action had been initiated by the companies at their sites to involve the local union or hourly workers in company plans or actions to prevent or respond to a catastrophic event caused by a possible **terrorist attack**. About one-quarter reported involvement by the local union, and hourly workers in making recommendations (local union = 25%, hourly workers = 22%), and being informed by the company (local union = 21%, hourly workers = 28%). Almost two-thirds (63%-66%) reported *don't know when asked* how the company involved the community. It must be asked, how can company action programs be effectively undertaken and have so many people be unaware of them?

Ten percent (10%) of respondents reported that their local unions had taken action to improve the company's plans or actions regarding prevention of or response to a catastrophic event. However, 83% reported no action had been initiated by their local union. Those respondents who indicated actions taken by the local union, described efforts to ask the company for additional employee training, and offers for the local union to work with the company on these issues.

It appears that companies are working to address prevention and response regarding hazardous materials without meaningfully involving or engaging hourly workers, or local unions. Our findings suggest that this is the same regarding working with communities surrounding the sites. With almost two-thirds of responses in the *don't know* choice regarding community involvement, it suggests that the further away the question focus is from the shop-floor, facility, or direct impact on rank and file workers, the less informed respondents were.

Recommendations for the Future

A number of action-oriented opportunities for PACE Union's Health and Safety Department and local unions emerge from this examination of the survey findings.

The PACE Evaluation Team Incident Prevention and Response Since 9/11 Work Group recommends that local unions examine this report's findings and consider the following questions:

1. What does this data mean for your local and for your site?
2. What actions do you want the company at your site to take regarding the following: preventing catastrophic events; preparing to respond to potential catastrophic events or emergencies; and involving your local union, hourly workers and the communities surrounding your facility?
3. What role should your local union take to initiate or advocate for the highest levels of prevention for your members, the facility, and the communities surrounding your facility?
4. How can your site work more closely in coordination with local emergency responders and health providers who would respond in an emergency?
5. Can your local union organize a training for your members about these issues, using the PACE Health and Safety Department curriculum?

Furthermore, the Evaluation Team Work Group recommends that the PACE Health and Safety Department take the following actions:

- A. Educate and train PACE members about more effective actions companies could take to prevent catastrophic events using higher levels of prevention, rather than solely focusing on increased security measures.
- B. Develop expanded training opportunities for PACE members about: 1) prevention and response to hazardous materials emergencies, and 2) the variety of roles local unions, hourly workers, and communities can play in prevention and response activities.
- C. Increase the level of awareness about these issues within PACE Union.

Preventing and preparing to respond to potential catastrophic events whether caused by terrorist attacks or unintentional incidents are important issues facing PACE's membership. The PACE Evaluation Team hopes this assessment and report contribute to the dialogue and to effective action to meet these serious challenges.